

# **The Missouri Gaming Market: Gamer Profiles and the Estimated Impact of New Gaming Facilities on the State of Missouri and Missouri's Gaming Industry**

St. Louis, Kansas City, and Out-State Missouri  
**Final Market Report**  
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## **Executive Summary**

In this report we analyze the results of a multi-state telephone survey on gaming in Missouri and our estimations of gaming market impacts from the introduction of new gaming facilities in Missouri. The survey was conducted during the summer of 2007 and includes Missouri residents and residents in the Illinois and Kansas portions of the St. Louis and Kansas City metropolitan statistical areas, respectively. We derived market impact estimates from a series of econometric models that incorporate regionalized gaming patron data and data collected from the survey. The analyses and conclusions discussed throughout this report are detailed and numerous, not surprising given the scope of the work and the nature of the subject. For the sake of brevity and convenience, however, we have provided a short, non-exhaustive list of highlights and findings as follows.

- A majority of survey respondents approve of gaming in Missouri; a majority express support for the loss limit
- Opposition to the loss limit increases among high income, high gaming budget, non-white, and male sub-samples
- Both high budget and high income sub-samples report a greater likelihood of visiting Missouri's casinos after the loss limit is repealed
- Propensity to gamble among residents of the Missouri gaming market is estimated at 26.7% (28.4% when age adjusted)
- Gambling frequency increases among non-white and older age sub-samples
- Slots are generally preferred over table games, with slot preference the greatest within the female, low income, and non-white sub-samples
- We estimate modest increases in aggregate gaming revenues and gaming taxes, holding all else constant, associated with the opening of new gaming facilities in Missouri
- Increases are generally less than 5%
- Existing gaming facilities will experience a reduction in revenues, holding all else constant, as a result of additional gaming facilities in Missouri

# **The Missouri Gaming Market: Gamer Profiles and the Estimated Impact of New Gaming Facilities on the State of Missouri and Missouri's Gaming Industry**

## **Introduction**

Since the inception of legalized gaming in 1993, the number of licensed gaming facilities in Missouri has steadily increased. Currently, Missouri has 11 gaming facilities and 2 properties that are owned by Pinnacle Entertainment and under construction in St. Louis City and County. Looking forward, potential investors have expressed interests in developing new facilities on the Mississippi River at the Chain of Rocks in North St. Louis and on the Missouri River at Sugar Creek between Kansas City and Independence, Missouri. Taken together, recent developments indicate both certain and potential substantial growth in the number of licensed gaming facilities in Missouri.

Recent developments in Kansas and Illinois offer further evidence of increasing competition for Missouri's casinos. The Kansas legislature recently passed a gaming expansion bill that authorizes a destination casino resort in Wyandotte County, Kansas and 2,400 new slot machines at 3 horse and dog racing tracks, including the Woodlands in the Kansas City metropolitan area. In Illinois, the legislature has considered authorizing new casinos and increasing the number of authorized gaming positions statewide as a means to secure funding for transportation spending. While a new Illinois casino in metropolitan St. Louis is unlikely, the Casino Queen in East St. Louis has positioned itself to procure additional gaming positions by expanding its gaming floor to better compete with the Pinnacle facilities under construction in St. Louis City and County. Finally, the Illinois legislature has from time to time discussed the installation of slot machines at Fairmount Park Racetrack in Collinsville.

Consequently, Missouri's casinos may expect increasingly aggressive competition both from within the state and from without as Illinois and Kansas compete for regional gaming dollars.<sup>1</sup> This sudden growth in competition arises against the backdrop of a downward trend in patronage and admissions across the Missouri market, thereby further complicating matters and raising substantial concerns about the capacity to absorb additional casinos in Missouri.

To further complicate matters, fears of decreasing competitive strength among Missouri's casinos are heightened by the enforcement of the Missouri loss limit. Initially intended to limit gamer losses on navigable gambling boats to \$500 per 2 hour boating excursion, the advent of boats in moats eliminated water borne excursions. The loss limit, however, was retained and now applies to limit gamer losses to \$500 per 2 hour gaming visit or admission. As the sole U.S. gaming jurisdiction that enforces a loss limit, questions arise about the existence and the extent of a competitive disadvantage hampering the growth and vitality of the market for gaming in Missouri.

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<sup>1</sup> Not to mention increasing competition at the national level. This study, however, focuses on gaming patrons, market structure, and economic impacts associated with Missouri and the immediate Midwest region of the United States.

During its 2007 session, the Missouri legislature considered Senate Bill 430 that, *inter alia*, would have eliminated the loss limit while capping the number of permitted gaming licenses in Missouri at 16. The bill, however, died when certain legislators added a tax increase provision to its terms. Nevertheless, the Missouri gaming industry will continue to advocate for loss limit repeal in an attempt to increase patrons and revenues and to improve its competitive stance within the larger gaming industry. The extent to which loss limit repeal would improve the competitive health of Missouri's casinos is presently the subject of substantial speculation.

The State of Missouri and its Missouri Gaming Commission (hereinafter the "Commission") appreciate the increasingly competitive environment in which the gaming industry functions. At the same time, the Commission acknowledges its need for reliable market information in order to fulfill its duties to regulate and to promote a lawful and viable gaming industry in Missouri. In particular, the Commission seeks to increase its knowledge of Missouri's citizens and gaming patrons, their political beliefs and behavioral trends, habits, and preferences, by commissioning a regional gaming survey and gamer profile of residents in Missouri, Illinois and Kansas. The Commission further requests the design and implementation of a complementary economic model that estimates market impacts from the introduction of one or more additional gaming facilities in Missouri.

As Missouri's regulatory agency for gaming, the Commission is responsible for ensuring the integrity of gaming and its positive impact on the State and its citizens. The Commission must not only regulate the current gaming industry, but must also remain informed on topics that will have an effect on the future of gaming in the State. The Commission must remain knowledgeable on topics such as gamer profiles, market saturation, and new markets and market trends, as well as possible changes to the gaming law and how such changes would affect the State's gaming industry. To this end, the Commission has contracted with the University of Missouri-St. Louis through its Department of Economics and its Labor and Education Market Analysis to conduct a gaming market survey and capacity analysis for the State of Missouri. Gregory P. Aubuchon, J.D. and Donald J. Kridel, PhD. (hereinafter Aubuchon and Kridel) are solely responsible for all research, analyses, and conclusions set forth in this report.

#### **a. Design of Study**

The research utilizes 2 instruments: a detailed analysis of a telephone gaming survey of 2,500 residents in Missouri, Illinois and Kansas and an econometric market share and growth model that estimates the financial impact of new gaming facilities in Missouri. The models have been estimated in 2 distinct runs using separate data sources. We have generated model runs using data compiled from the survey and similar data derived directly from Missouri's gaming facilities and regionalized to protect the confidentiality of each existing casino.

The survey was conducted during July and August of 2007. We asked survey respondents a series of questions regarding gaming approval/disapproval, propensity to gamble, frequency of gaming, gaming preferences and habits, gaming budgets, gaming expansion and likely effect on existing casinos, impact of loss limit on gaming decisions, and propensity and frequency of visits to out-of-state gaming facilities. We further requested demographic data

from each survey respondent to permit a detailed cross matching between survey responses and demographic characteristics (e.g., race, gender, household income). Detailed cross matching using demographic sub-groups sheds additional light on the variation in gaming attitudes, habits, and preferences among persons of different races, gender, and socio-economic status.

A series of econometric models will be developed to address a variety of issues related to an increase in the number of gaming licenses. In particular, models will be developed that will allow us to estimate:

- Impact on revenue (AGR);
- Impact on patrons;
- Impact on visits (admissions);
- Impact on market shares of existing gaming establishments.

The models will be developed from two data sources:

1. Telephone survey (described above);
2. Gaming establishment data by zip code (provided by the Gaming Commission).

The two estimates from these models will (hopefully) provide additional evidence of the reasonableness of the predictions. In other words, to the extent that the predictions from two independent data sources are “consistent”, this will provide added confidence that the predictions are correct.

## **b. Goals of Study**

This study has a twofold purpose. First, Missouri assigns to the Commission the duty to regulate the gaming industry and to assure the lawful operation of the gaming market while protecting the interests of Missouri’s citizens. The successful performance of this duty presupposes, among other things, a detailed comprehension of the Missouri gamer<sup>2</sup>. Lacking adequate understanding of gamer attitudes, habits, and preferences, the Commission must design and implement gaming policies using sub-optimal market information. The survey responses and the patterns and trends uncovered therein increase the store of knowledge available to the Commission, which in turn improves the decision making process at the regulatory level of government.

A decision to grant or to deny an application for a Missouri gaming license should rest in part on a detailed understanding of the Missouri gamer and a meaningful device for estimating the market’s capacity to absorb the proposed gaming facility at the location in question. In making its decision, the Commission must balance the benefits derived from additional facilities (e.g., growth in patrons and gaming admissions, increases in aggregate gaming revenues, greater low skill entry level employment opportunities, additional state and home dock revenues) against the costs associated with market saturation (e.g., decreased viability of existing facilities, narrowed incentives for capital improvements, increased competition and

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<sup>2</sup> For purposes of this study, the term “Missouri gamer” encompasses Missouri residents and residents of Illinois and Kansas living in the St. Louis and Kansas City Metropolitan Statistical Areas (MSAs) who visit one or more Missouri gaming facilities, or Illinois facilities in the St. Louis MSA, for gaming purposes.

lower facility profits, inevitable market share dilution). The econometric market share and growth model presents a scale for the weighing of these factors by providing meaningful estimates of market impact, saturation and viability with respect to proposed new gaming facilities in Missouri. In this study, we have generated models that examine the impacts of new facilities in downtown St. Louis (Lumiere Place), Lemay in St. Louis County (River City Casino), Chain of Rocks in North St. Louis, Sugar Creek east of Kansas City, Wyandotte County, Kansas, Jefferson City, Missouri, Hermann, Missouri, and Cape Girardeau, Missouri.

## **Background: The Gaming Industry in Missouri**

We begin with a brief history of gaming in Missouri before discussing the detailed results of the gamer survey and the market models. A reasonable estimate of future events requires a firm grasp of where the market has been, and in what direction it has moved over the recent past. As you will see, recent trends indicate a maturing market for gaming in Missouri, compounded by increasing competition from the contiguous states. Underlying growth indicators remain less than potent as illustrated by the flat growth trend for gaming patrons over the preceding eight years. To date, the Missouri market has earned the moniker of a “regional gaming market,” characterized presently by limited prospects for transformation into a major destination market that supplements its regional patron base with gamers from across the United States.

### **a. A Brief History of Gaming in Missouri**

Missouri voters approved riverboat gambling by constitutional amendment in 1993. After initial disagreement over, then clarification of, the new riverboat gaming law, Missouri licensed its first riverboat gaming facility in 1994. The market grew in fits and spurts throughout the 1990s, marked by consolidations of existing facilities, closure of failing facilities, and the construction of new facilities. This emerging market pattern came to a temporary rest by 2003, leaving Missouri with 11 licensed gaming facilities as illustrated in Figure 1 below.

For the remainder of this report, we divide the Missouri gaming market into the following sub-markets for the purpose of analysis:

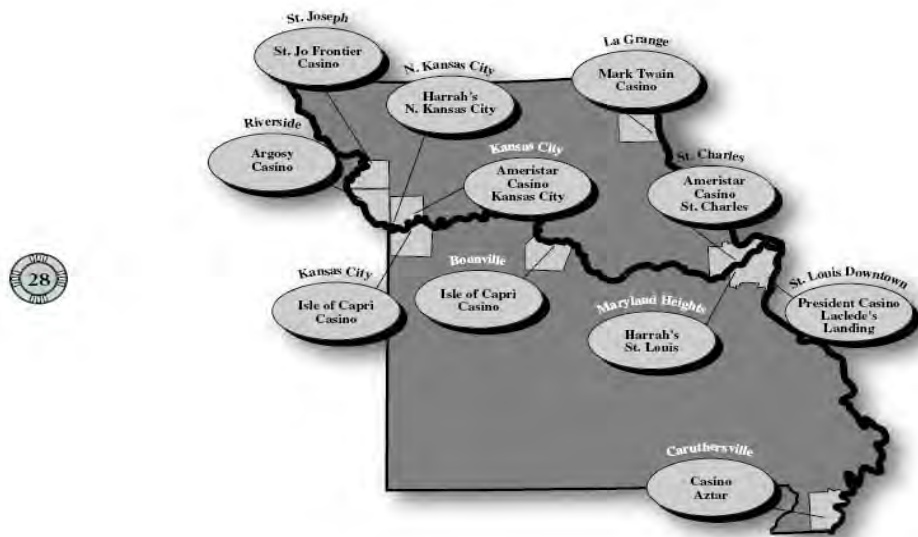
- St. Louis market: Harrah’s Maryland Heights, Ameristar St. Charles, President’s Casino St. Louis, Casino Queen East St. Louis, and the Argosy Alton Casino.<sup>3</sup>
- Kansas City market: Argosy Riverside, Ameristar Kansas City, Harrah’s North Kansas City, and the Isle of Capri Kansas City.
- Out-state Missouri market: Casino Aztar Caruthersville, Isle of Capri Boonville, Mark Twain Casino La Grange, and the St. Jo Frontier Casino St. Joseph.

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<sup>3</sup> The Casino Queen and Argosy Alton are located in Illinois. Because of their close proximity to St. Louis they are undeniably a part of the St. Louis gaming market. As such, the survey and the market growth and share model account for these Illinois facilities. The data on patrons, AGR, and wins per patron, reported below in subsection c, do not include figures for the Illinois facilities.



Figure 1



Source: Missouri Gaming Association

#### b. Recent Trends: Market Growth and Capital Expansion in Missouri

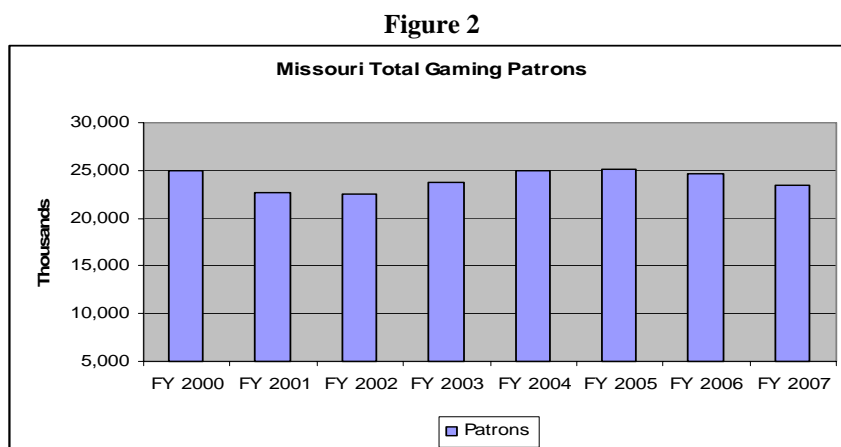
Beginning about 2003, regional leaders in St. Louis initiated discussions addressing the potential for gaming expansion in the region. After receiving and reviewing competing plans for the development of 1 or more casinos, the City of St. Louis, St. Louis County, and the Commission authorized Pinnacle Entertainment to develop 2 destination gaming facilities, one in the City of St. Louis the other in St. Louis County. Presently, Pinnacle intends to open its Lumiere Place facility in downtown St. Louis by December 2007, and its River City Casino and Hotel property in St. Louis County by the first half of 2009. Pinnacle has purchased the President's Casino as part of its Lumiere Place infrastructure acquisition and development strategy. At this time, Pinnacle has not publicly disclosed its future intentions with respect to the President's Casino.

Missouri's gaming facilities have recently conducted capital expansions of hotel capacity, improvements to hotel assets and associated amenities, and other capital initiatives. Most notable are \$253.2 million in investments by Ameristar St. Charles and Kansas City for hotel construction and improvements, \$120.3 million in investments by Harrah's North Kansas City and Maryland Heights for hotel expansions, \$55 million in expenditures by Argosy Riverside for hotel construction, and \$17.5 million in investments by Isle of Capri Boonville for hotel and convention center construction.

Hotel accommodations appear to be a vital component of a casino marketing strategy. Pinnacle's pending entry into the Missouri gaming market combined with events in the contiguous states (discussed below) promise to substantially heighten competition for limited gaming patrons. Given this substantial increase in competition, Missouri's gaming facilities have responded with capital improvement projects designed to attract and retain both in state and out-of-state gaming patrons.

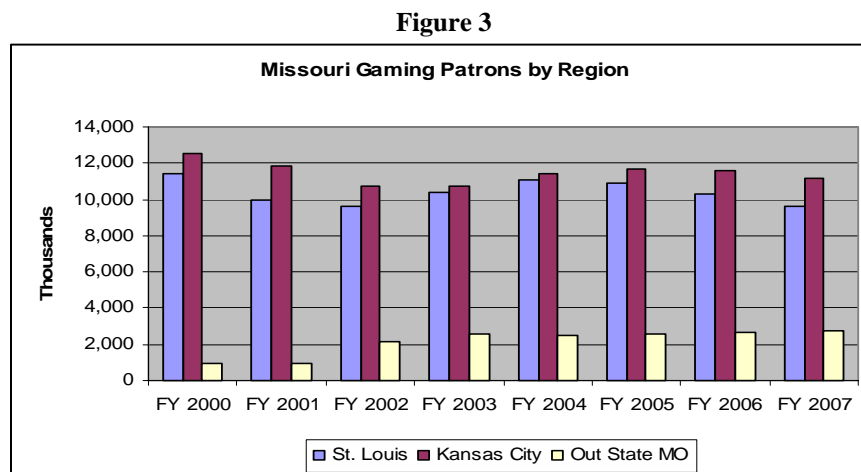
c. **Recent Trends: Demand, Prices, Gaming Patrons, Wins Per Patron, and Gaming Revenues**

Missouri growth in casino patrons has been flat since 2000. Figure 2 illustrates the trend over the previous eight fiscal years.<sup>4</sup> One patron denotes a single distinct visit to a casino by a specific person, without respect to the duration of the visit. For each two hour stay at a single casino, one admission is recorded. Thus, one patron and two admissions are added to the annual total when a gaming consumer enters a casino to gamble for four hours.



Source: Missouri Gaming Commission

The modest recovery in statewide patrons beginning FY 2003 is attributable in part to the addition of two out-state casinos to the Missouri market, the Isle of Capri in Boonville and the Mark Twain Casino in LaGrange. See Figure 3. Each facility received its license in FY 2002. Figure 3 further indicates that the extended recovery through FY 2005 was supported by patron increases across all sub-markets in Missouri. This indicates a more diffuse pattern of growth touching the entire state for that period. Nevertheless, the longer term trend for Missouri and the trends for the St. Louis and Kansas City sub-markets exhibit stagnant growth in gaming patrons over the eight-year period.

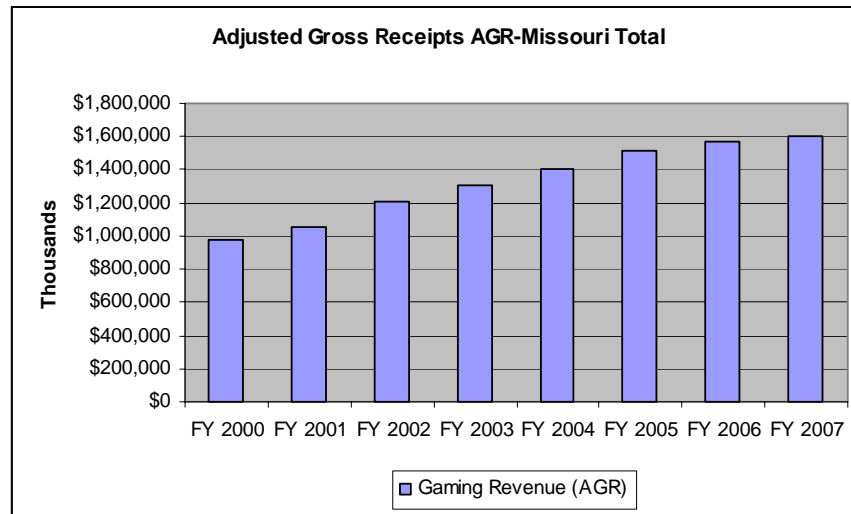


Source: Missouri Gaming Commission

<sup>4</sup> The Missouri Gaming Commission enforces a fiscal year that extends from July 1 to June 30 of the succeeding year.

Despite the stagnant growth trend in patron volumes, adjusted gross receipts (AGR) have consistently increased over the same period.<sup>5</sup> Figure 4 depicts Missouri AGR growth for all casinos. Over the course of the period, statewide AGR has grown from \$977 million in FY2000 to \$1.6 billion in FY 2007.

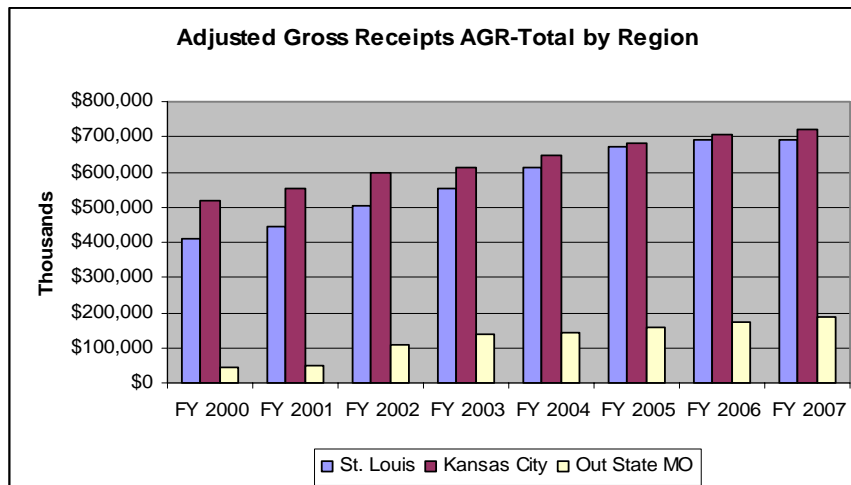
**Figure 4**



Source: Missouri Gaming Commission

Figure 5 demonstrates a consistent growth pattern in AGR across all sub-markets in Missouri. Consistent growth in each of Missouri's sub-markets fueled a statewide AGR growth trend over the entire period.

**Figure 5**



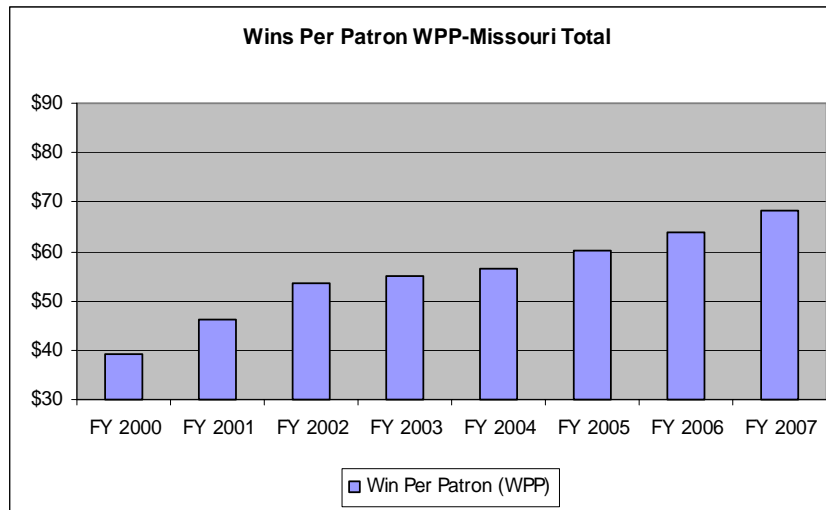
Source: Missouri Gaming Commission

Facing flat patron growth across the entire Missouri gaming market and for each of its sub-markets, casinos have funded rising AGR streams by various means that increase wins per

<sup>5</sup> AGR represents gaming gross revenues after payments on wagers. AGR is equivalent to total consumer gaming expenditures and total house wins.

patron (WPP).<sup>6</sup> WPP equals AGR per patron visit, or average consumer expenditure on gaming and gross gaming revenue transferred to casinos for each casino visit by a gaming patron. Figure 6 demonstrates growth in statewide WPP over the preceding 8 fiscal years. Missouri's casinos averaged \$39.20 in WPP in FY 2000. That figure rose to \$68.14 by FY 2007.

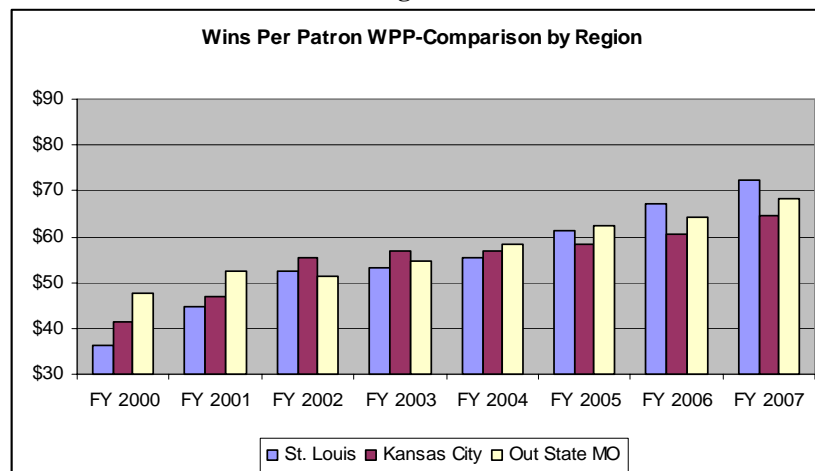
**Figure 6**



Source: Missouri Gaming Commission

With stagnant patron growth rates in each Missouri sub-market, the casinos in each successfully increased WPP. Figure 7 illustrates the success of WPP growth in each sub-market. Again, flat patron growth combined with increasing WPP culminated in substantial AGR growth for Missouri's casinos. The numbers reveal an especially aggressive growth rate in the St. Louis sub-market.

**Figure 7**



Source: Missouri Gaming Commission

<sup>6</sup> Such means may include upgrades to gaming environment and facility amenities such that patrons are willing to spend more for an improved gaming experience, or replacement of existing slot machines with machines that increase AGR inflows per unit of time. These are provided by way of example, and many additional strategies exist for increasing casino WPP and AGR.

AGR growth may emanate from either of two sources: increase in patrons or increase in wins per patron. When patron volumes cease to grow, successive increases in wins per patron raise the price paid by consumers for gaming services and entertainment. Thus, consumers of gaming entertainment pay more money per casino visit. Assuming inelastic demand for gaming, successive price increases induce proportionately small decreases in the quantity of gaming services demanded, giving rise to increasing gaming revenues (AGR). The data discussed herein lend support to this analysis.

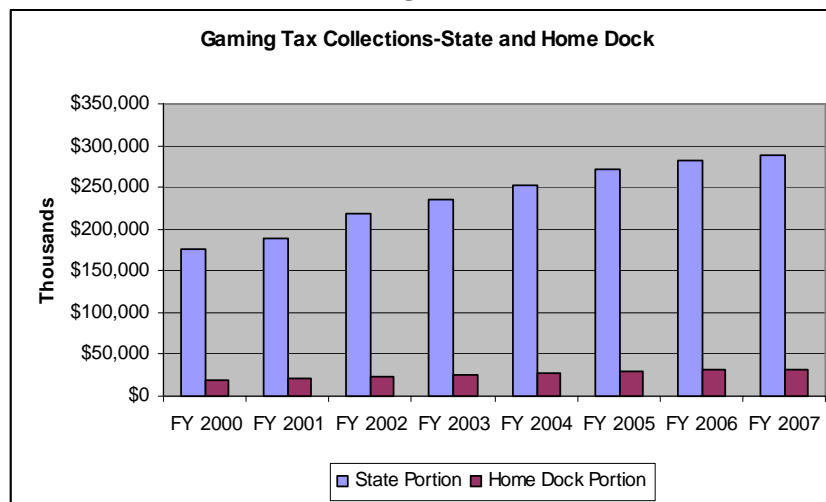
All things considered, the data provide evidence of a mature market for gaming in Missouri. This conclusion rests in part on market definition. When characterized as a “regional” gaming market that attracts the greater share of its patrons from the State of Missouri and the immediate Midwestern United States, Missouri’s gaming industry exhibits strong signs of maturity with limited growth potential. To the extent that the industry evolves into a “destination” market model, the current analysis and its conclusions become less relevant as the scope of potential patrons grows beyond the geographic confines of Missouri and its contiguous states.

#### d. Gaming Taxes and State Revenues

Missouri derives gaming tax revenues via two sources: the gaming tax on AGR and the tax on casino admissions. Missouri enforces a 20% gaming tax on AGR. Missouri’s gaming statute allocates 90% of the gaming tax to the state, and the remaining 10% to the home dock jurisdictions.<sup>7</sup> The admission tax consists of a \$2 surcharge on each patron admission (each two hour stay or excursion at a gaming facility is one admission). The admission tax is split 50/50 between the state and the home dock jurisdiction.

The gaming tax and its proceeds are a direct function of AGR, and therefore have followed the growth trend exhibited by AGR over the previous eight fiscal years. See Figure 8.

**Figure 8**



Source: Missouri Gaming Commission

<sup>7</sup> Municipalities or counties, as the case may be.

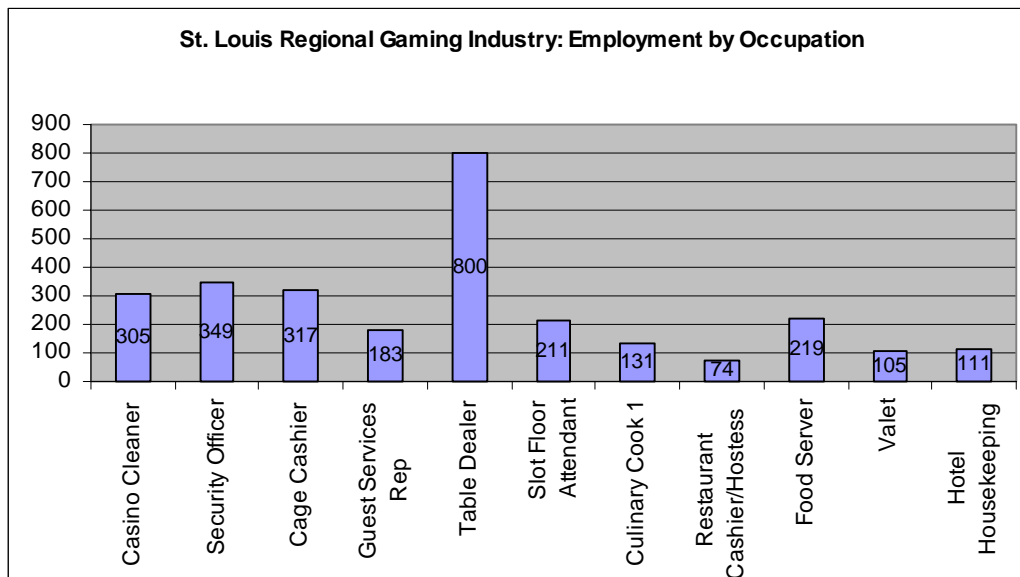
The taxing structure highlights how important AGR growth is to state tax collections. Unlike Illinois, Missouri does not enforce a progressive tax structure with increasing marginal tax rates. Arguably, the flat tax structure encourages revenue growth and capital improvements at individual facilities, which in turn increases state revenues and tax collections. At the same time, the stagnant growth in patrons and admissions has reduced the rate of growth in admission tax collections.

#### e. Gaming Employment Basics: St. Louis Example

Missouri's gaming industry employs approximately 11,354 occupationally licensed persons. Research conducted by the Labor and Education Market Analysis (LEMA) at the University of Missouri-St. Louis offers a more detailed analysis of occupational employment in the St. Louis sub-market. LEMA conducted on site interviews with upper management at each of St. Louis' five regional casinos during the first half of FY 2007.<sup>8</sup> Casino management participated by sharing specific occupational data covering entry level occupations identified as most critical by each management team. From this process arose 11 critical occupations, as discussed below.

Figure 9 depicts St. Louis regional employment as of December 2006 for the 11 critical occupations.

**Figure 9**

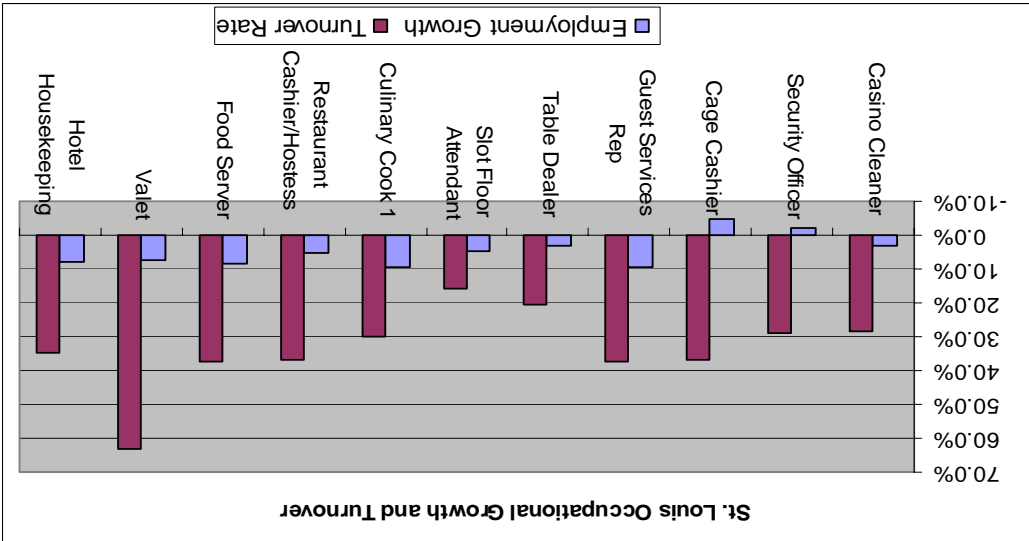


Source: Labor and Education Market Analysis, Gregory Aubuchon

Figure 10 reports employer estimated two-year growth rates and corresponding annual turnover rates for the 11 critical occupations. Technological advancements in cash handling and distribution systems account for the expected negative growth rate in employment for cage cashiers. A single casino reported anticipated employment declines for security officers following the completion of a new gaming floor that replaces its existing multi-floor layout. Otherwise, casinos reported modest occupational growth for security personnel. All told,

<sup>8</sup> Including the Illinois based St. Louis regional casinos: Argosy Alton Casino and the Casino Queen.

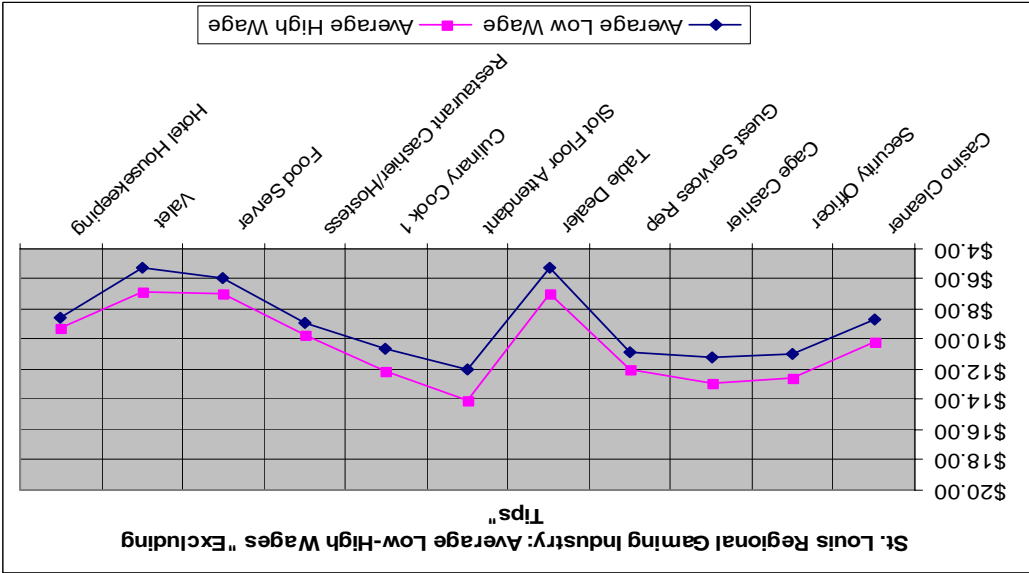
occupational growth and turnover rates provide a meaningful estimate of future demand for occupational employment in the St. Louis regional gaming industry.<sup>9</sup>



Source: Labor and Education Market Analysis, Gregory Aubuchon

Figures 11 and 12 depict occupational wage paths in St. Louis. Management at each St. Louis facility disclosed the lowest and highest wage paid for each occupation at their casino. Regional low and high wage averages were calculated and plotted on the following graphs. Because tip income constitutes a substantial percentage of total wages for certain gaming occupations, separate wage paths reflecting wage only and wage plus tips are provided.

Figure 11

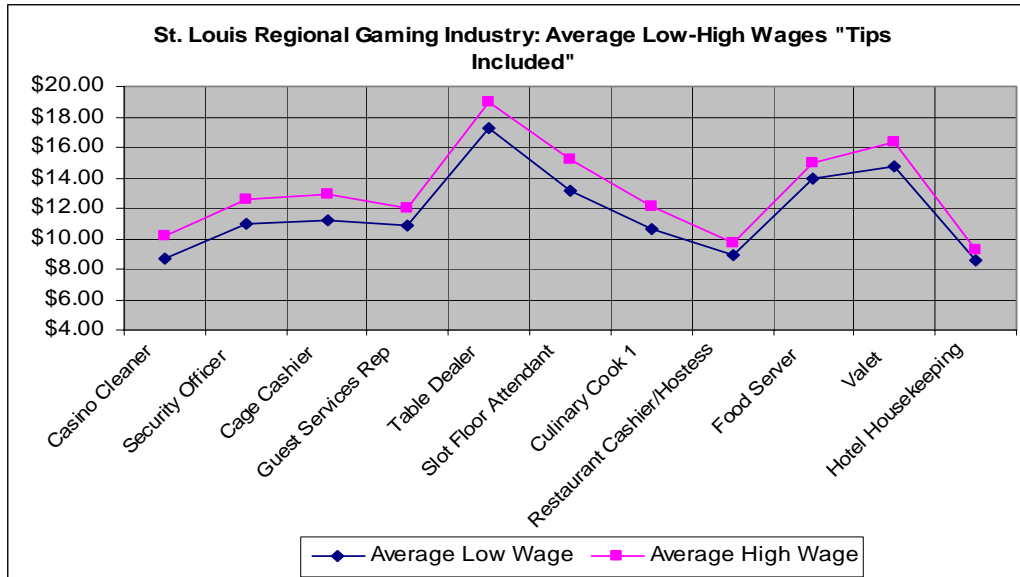


Source: Labor and Education Market Analysis, Gregory Aubuchon

<sup>9</sup> Figures do not reflect future employment growth and turnover rates at Pinnacle's St. Louis facilities.

Figure 12 includes tip income in addition to ordinary wages paid. After accounting for reported tip income, table dealers earn the highest hourly compensation, followed by valets then food servers. These latter occupations are tip earning positions that have the lowest reported non-tip wage levels (see Figure 11), hence the importance of tips to employees in these occupations.

**Figure 12**



Source: Labor and Education Market Analysis, Gregory Aubuchon

The occupational employment figures represent conditions in St. Louis as they existed during the first half of FY 2007. Although these figures do not directly reflect employment conditions in the Kansas City or out-state Missouri gaming markets, one may assume a rough similarity in employment conditions among Missouri's gaming sub-regions.

#### **f. Recent Developments in the Contiguous States**

At the time of writing, gaming market developments in Illinois and Kansas remain uncertain. Recent events in both states threaten to substantially impact the St. Louis and Kansas City gaming markets.

During its 2007 session, the State of Kansas passed gaming legislation authorizing the Kansas Lottery Commission to award as many as 4 licenses to operate new casinos in Kansas. Among the counties eligible to host a new casino, Wyandotte County, which includes Kansas City, Kansas, is a leading candidate for a new first class destination casino resort. Pursuant to the legislation, 5 casino operators have submitted applications to manage the state owned facility in Wyandotte County. Opening dates are currently estimated for 2010. Substantial impact on the Kansas City market is certain (market estimates are discussed below in the section on market modeling). Each of the existing Kansas City, Missouri facilities will experience tighter market conditions, yet Argosy Riverside is expected to feel the greater impact in terms of patrons and AGR.



With respect to the St. Louis market, the Illinois legislature remains in session at the time of writing. Legislators are considering options for funding a statewide infrastructure initiative. Among the sources for funds being considered, gaming expansion has garnered limited support. In particular, Illinois legislators have proposed expanding the current cap on gaming facilities by 3 and increasing the number of permitted gaming positions statewide. At this time, however, a new Illinois casino in the St. Louis region is not likely. We expect new facilities to arise, if at all, in the northern half of the state. Because the Casino Queen recently completed a major expansion of its gaming floor and amenities, it now has the excess capacity to absorb additional gaming positions. Illinois lawmakers are currently debating the appropriate price for new gaming positions. Assuming the passage of a gaming bill, the statutory price may determine whether the Casino Queen acquires additional gaming positions to be added to the St. Louis gaming market.

**g. The Missouri Loss Limit and a Proposed Cap on Gaming Licenses**

Senate Bill 430 did not pass the Missouri legislature in its 2007 session.<sup>10</sup> SB 430 would have repealed Missouri's \$500 loss limit and cap gaming licenses in Missouri at 16.<sup>11</sup> An additional tax or "education allowance" of 4.25% would have attached to AGR for each gaming facility in excess of \$40 million. The allowance was in addition to the existing 20% gaming tax on AGR, thereby imposing a limited progressive marginal taxing structure on gaming facilities in Missouri.

Missouri's gaming facilities generally support the repeal of the loss limit. By limiting gamer losses to \$500 per 2 hour gaming excursion, the loss limit may discourage some gamblers from visiting Missouri's casinos. As discussed below in the gamer profile section, survey respondents offer support for the supposition that the loss limit deters higher budget gamers from patronizing Missouri's casinos. In addition to restricting the choices of consumers in deciding gaming budgets and expenditures, the loss limit information disclosure requirements clash with the concerns of many patrons over privacy and confidentiality.

In the end, the risk of license expansion (from 11 to as many as 16 facilities) and the education allowance tax increase proved too costly to those supporting loss limit repeal. Consequently, Senate Bill 430 failed.

**h. The Future: The Ability to Absorb Additional Facilities and Expansion's Impact on Gaming Consumers and Missouri's Citizens**

The stage is set for the consideration of additional facilities in the St. Louis and Kansas City markets. The Commission has reported recent inquiries about the possibility of new casinos at the Chain of Rocks in North St. Louis and at Sugar Creek east of Kansas City. Each proposed location sits amidst an existing and vibrant gaming market populated by established casinos backed by substantial financial resources. Questions abound, including what would be the impact on market share among affected facilities, on patron and admissions growth, on

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<sup>10</sup> The bill would have created and authorized funding for the Smart Start Scholarship Program.

<sup>11</sup> Missouri has issued 11 gaming licenses and is considering two applications for the Pinnacle facilities in St. Louis pending final approval.

AGR growth both aggregate and with respect to individual facilities, on the viability of each facility post expansion, and on the level of tax collections. Notwithstanding market and fiscal issues, a thorough assessment of the public interest further requires an adequate understanding of the opinions, habits, and preferences of both gamers and non-gamers whose interests are served by the Commission and its regulatory activities.

In our effort to examine the broader picture, we have divided the remainder of this report into a discussion of the citizen survey and gamer profile, followed by a model based analysis of market impact simulations estimating the impact of new gaming facilities in Missouri. We begin immediately below with an examination of the telephone survey and gamer profile.

## **Telephone Survey and Gamer Profile: Gaming Opinions, Preferences, Habits and Attitudes**

The survey arises from the collaborative efforts of the Commission and the University of Missouri-St. Louis. We began with a draft document of questions concerning gaming and the Missouri gamer. In the course of discussions many questions were discarded, consolidated, and/or rewritten until a final draft of 57 questions was approved. The survey was conducted immediately thereafter, as discussed below.

### **a. Scope of Survey: Methodology, Sample Size, Geographic Scope, Sub-Regions, Demographic Characteristics**

We began the research by conducting a telephone survey of 2,500 adults 21 years of age and older (the “global sample”). The survey was fielded during July and August of 2007. The global sample was drawn from random participants residing in the State of Missouri and the Illinois and Kansas counties of the St. Louis and Kansas City Metropolitan Statistical Areas (MSAs), respectively.

The global sample is divided into geographic sub-regions for certain question groupings. For example, the first 9 survey questions were posed to Missouri residents only (“Missouri sample”). These questions sought the political opinions of Missouri voters and therefore were not relevant to Illinois and Kansas residents. Many questions were directed to the global sample. For example, question 10 asked each respondent whether they had visited a casino at least once in the previous 12 months for gambling purposes. Respondents who answered yes constituted the sub-sample of “gamers.” Gamers are later divided into 3 regional sub-samples corresponding to the St. Louis MSA, Kansas City MSA, and out-state Missouri gaming markets (St. Louis gamers, Kansas City gamers, and out-state gamers).

Survey answers are cross-matched to the demographic characteristics of the survey respondents to assist in the examination of responses among demographic sub-groups. This extends the analysis of the data by permitting a comparison of answers among racial, gender, age, and socio-economic sub-groups.

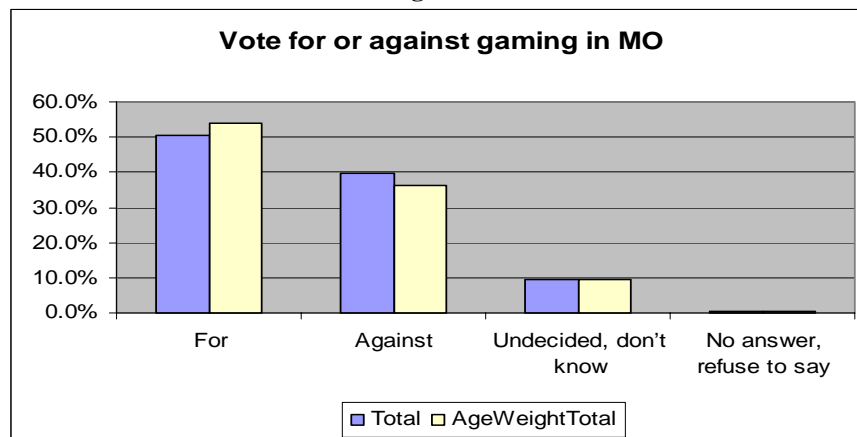
The global sample exhibits age skewing. The survey over sampled the oldest age cohorts (45-54, 55-64, and 65+) and under sampled the youngest cohorts (21-34 and 35-44). Consequently, we have reported both un-weighted and age weighted survey results in selected graphs below. Age skewing is addressed by proportional weighting of each age cohort.

We begin the discussion of survey results by addressing the political questions first.

**b. Political Questions (Missouri sample): Approval of Gaming in Missouri, Attitudinal Trends, Loss Limit, Gaming Expansion**

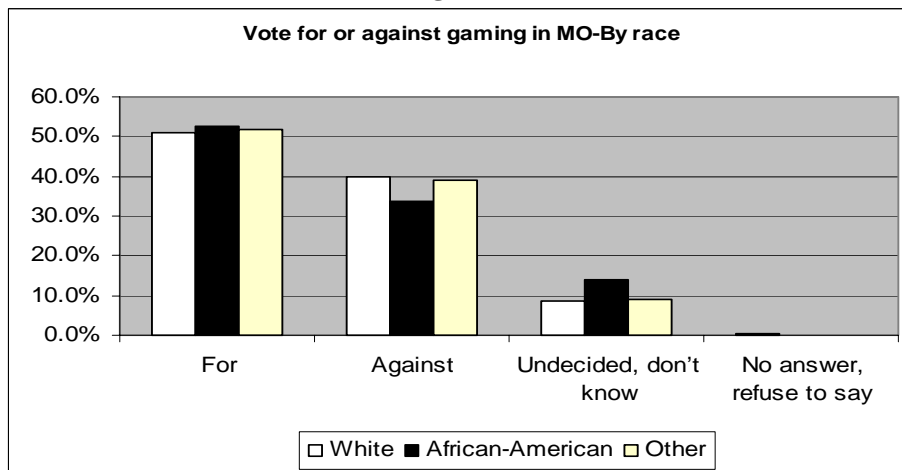
**Question:** If a vote were held today, would you vote for or against allowing gaming facilities in Missouri?

**Figure 13**



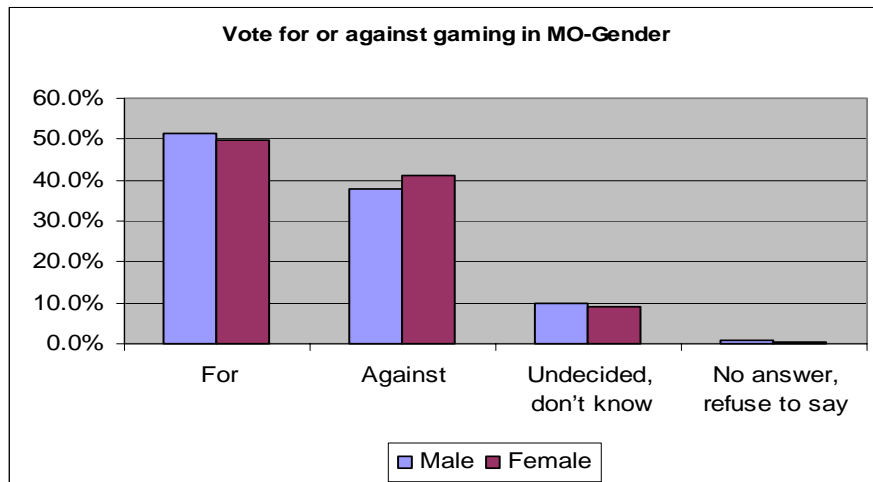
A slight majority of Missourians surveyed (50.5%) would vote to approve legalized gambling today. See Figure 13. The age weighted total indicates a greater acceptance of gaming among the younger age cohorts in Missouri (21-34 and 35-44 year olds). The age adjusted sample totals 53.8% in favor of legalized gaming in Missouri.

**Figure 14**



Responses did not vary substantially by race. See Figure 14. All racial sub-groups report slight majorities in favor of legalized gaming if a vote were held today. African-American respondents, however, report greater percentages who are undecided and fewer who are against legalized gaming.

**Figure 15**



When broken down by gender, 51.6% of male respondents report they would vote to approve gaming in Missouri if a vote were held today. See Figure 15. On the other hand, slightly less than half of female respondents (49.6%) answered that they would vote for gaming in Missouri.

**Figure 16**

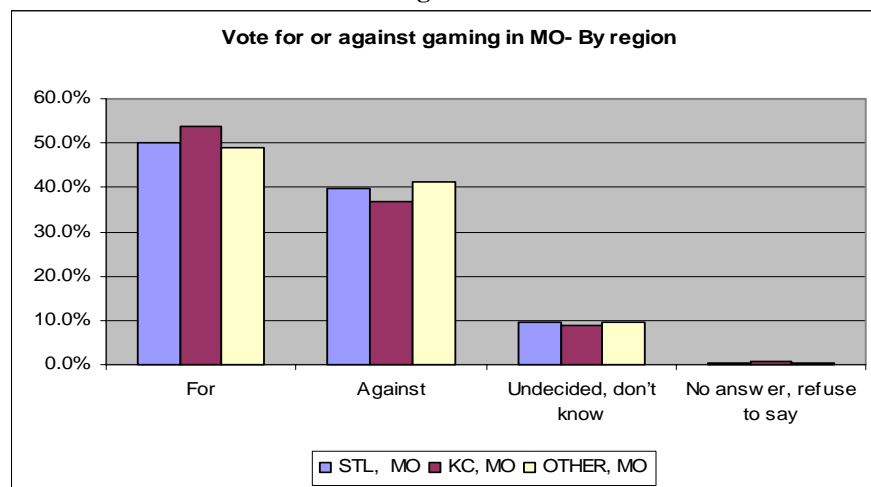
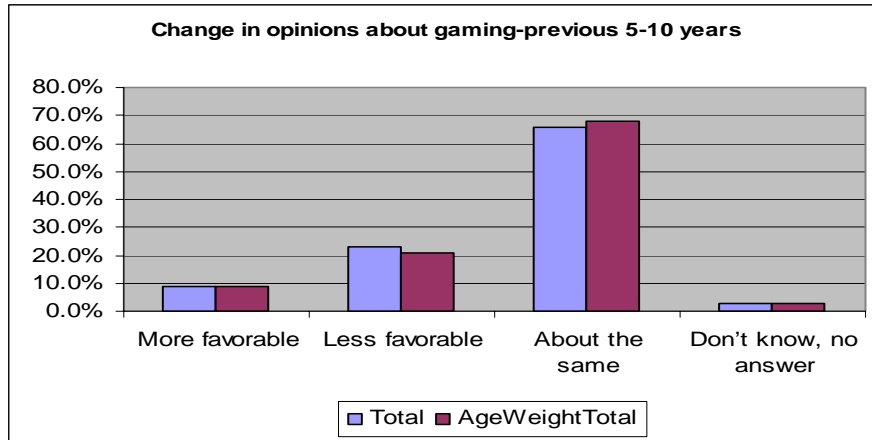


Figure 16 illustrates a slightly greater rate of approval among respondents in the Kansas City, Missouri sub-region. Perhaps as important, out-state Missouri respondents express approval rates similar to those reported in St. Louis and Kansas City. Beliefs that out-state residents harbor a stronger disapproval of gaming when compared to metropolitan residents in Missouri are common. The survey responses from the out-state sample seem to indicate some closing of the perceived gap between out-state and metropolitan citizens in Missouri.

**Question:** Over the past five to ten years, has your opinion about having gaming facilities in Missouri become more favorable or less favorable-or has it stayed about the same?

**Figure 17**



A majority of survey respondents report little or no change in their opinions about gaming over the last five to ten years. See Figure 17. Respondents who report a less favorable opinion outnumber those who report a more favorable opinion. The trend, therefore, indicates a slight downturn in favorable gaming opinions among residents in Missouri over the preceding five to ten years.

**Figure 18**

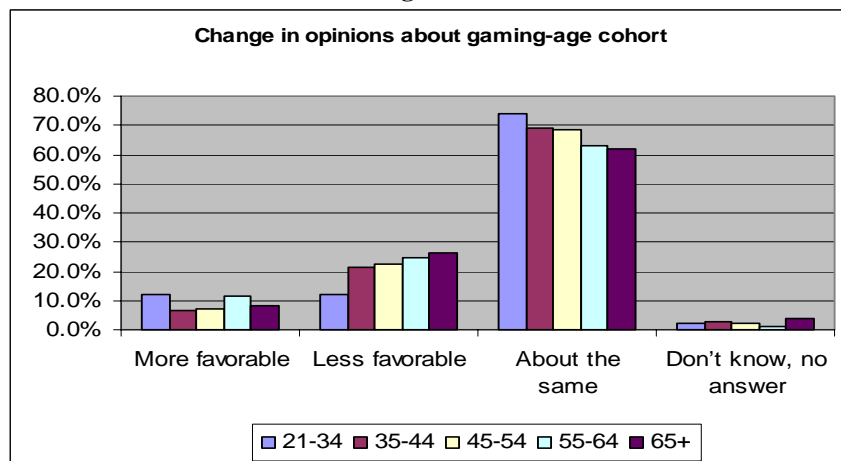
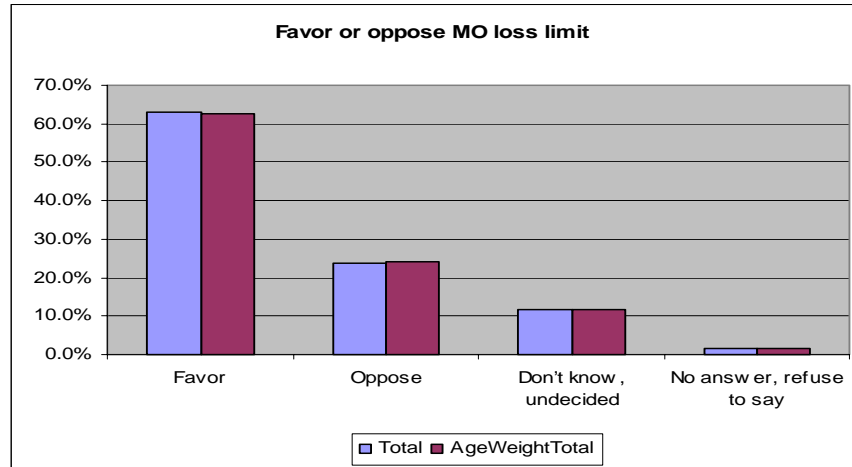


Figure 18 indicates that the source for the decrease in favorable gaming opinions arises from within the older age cohorts. The rate at which less favorable opinions are reported among cohorts increases as the age of the cohort increases. The movement towards less favorable opinions over time increases in intensity with age.

**Question:** Missouri currently has a law that limits the amount of money a single player can lose to \$500 for every 2 hours at a gaming facility. Do you favor or oppose having a \$500 loss limit?

**Figure 19**



A clear majority of survey respondents favor the Missouri loss limit. See Figure 19. Age weighting indicates no discernable difference when the younger age cohorts are accorded greater weight. This question addresses the limitation on pecuniary losses only, and not the personal information disclosure and confidentiality aspects of the loss limit law. Below we address the confidentiality aspects of the loss limit law, which tends to garner strong disapproval from gamers who participated in the survey.

**Figure 20**

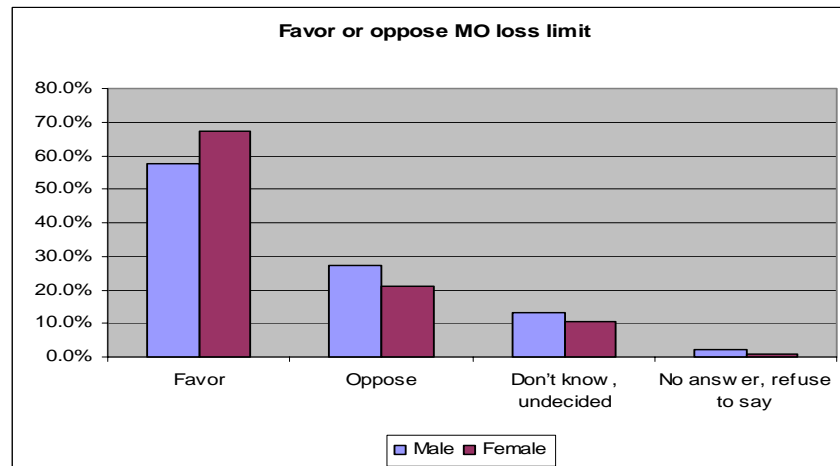
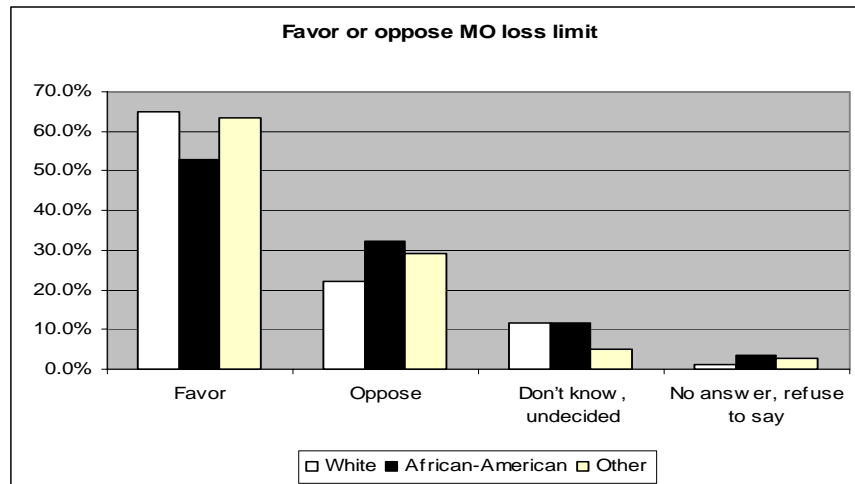


Figure 20 indicates substantially stronger support for the loss limit among the females surveyed. 67.4% of females favor the loss limit compared to 57.4% of males. Nevertheless, a strong majority of males and females in the Missouri sample support the current loss limit in Missouri, evidencing a broad consensus in support of the law.

**Figure 21**



African-American and other respondents expressed substantially greater opposition to the loss limit in Missouri compared to white respondents. See Figure 21. Even so, 52.9% of African-Americans surveyed expressed support for the loss limit as currently enforced, joining the remaining racial sub-groups in expressing majority support for the current loss limit in Missouri.

**Figure 22**

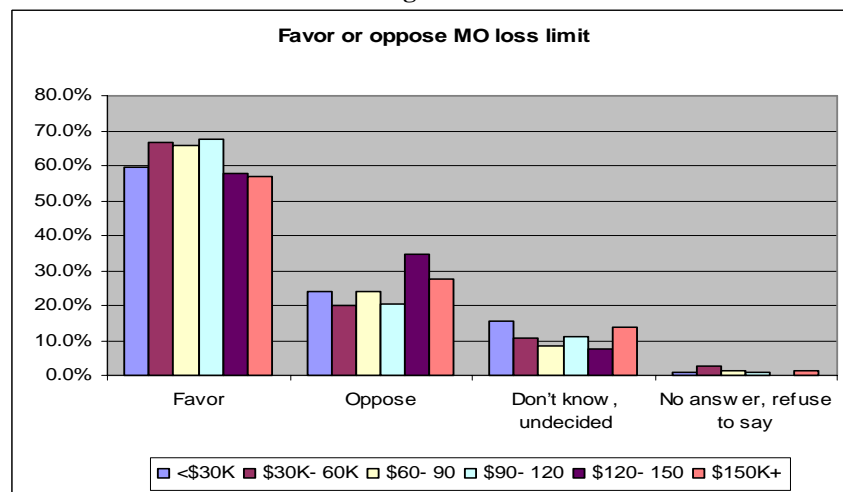
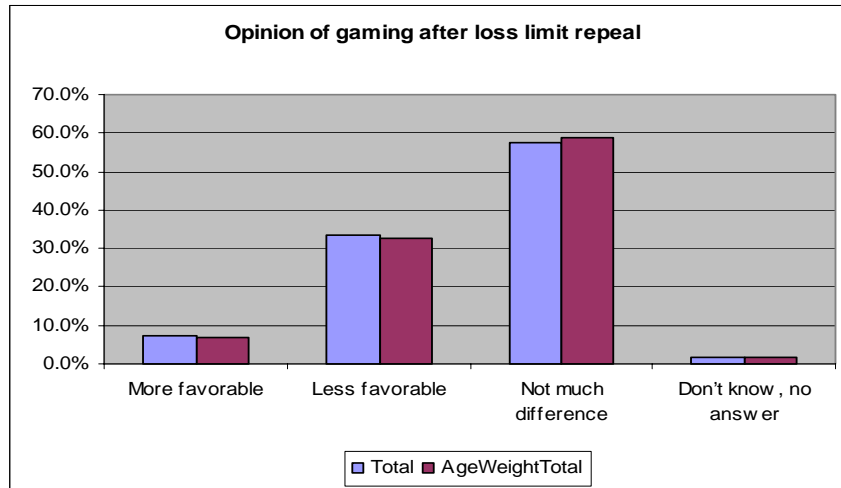


Figure 22 breaks down the responses by the reported household income of the survey respondents. The breakdown indicates increased opposition to the loss limit among the highest income brackets (\$120,000 annual household income and above). By comparison, support for the loss limit is stronger among the lower household income brackets. Proponents of Missouri's loss limit may argue that loss limit repeal would have a disparate impact on Missouri's lower income gaming patrons. The survey responses, however, indicate relatively strong support for loss limits among the lower income cohorts when compared to the higher income cohorts. These results do not lend support to the opinion that loss limit repeal would result in a disproportionate inflow of low income patrons into Missouri's casinos, or the assumption of increasing financial risks by the same, following the repeal of the loss limit.



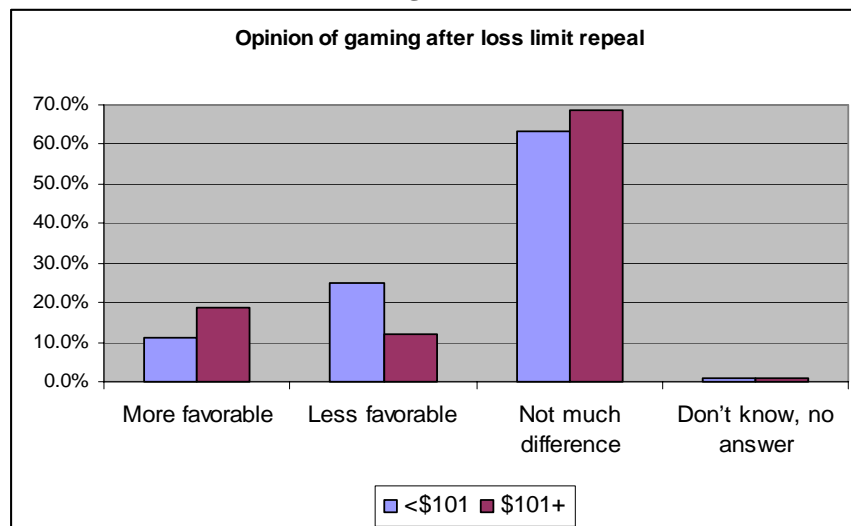
**Question:** If the \$500 loss limit were eliminated, would your opinion of having gaming facilities in Missouri be more favorable or less favorable—or would it not make much difference either way?

**Figure 23**



Support for the loss limit among the survey respondents is further illustrated in Figure 23. Although a majority of respondents report little to no change in gaming opinions after a repeal of the loss limit, 33.7% say their opinions of gaming in Missouri will become less favorable, compared to only 7.2% reporting more favorable, should the loss limit be repealed. The resulting downward trend in favorable gaming opinions should be interpreted as in addition to the existing downward trend over the preceding five to ten years discussed previously. See Figures 17-18 above.

**Figure 24**

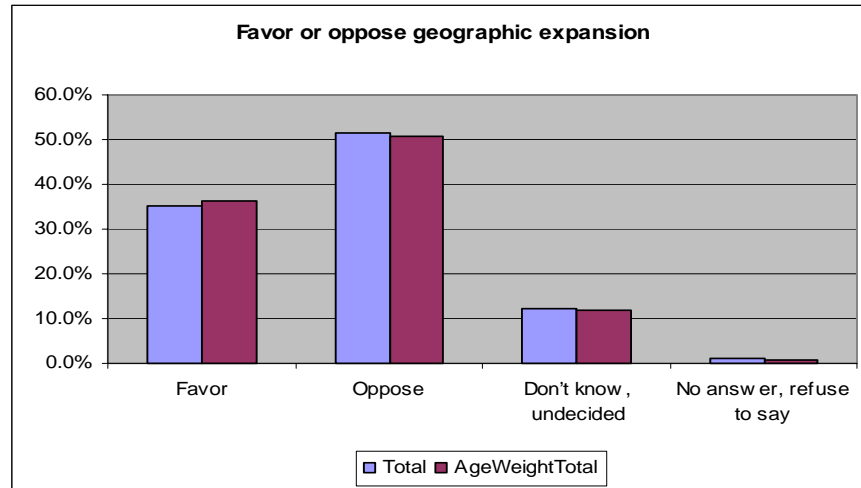


At this point we isolate the sample of gamers who reported their gaming budgets per casino visit (ignoring the greater Missouri sample for the purpose of Figure 24 only). Gamers who claim to have per visit budgets in excess of \$100 report a net “more favorable” opinion of

gaming in Missouri following loss limit repeal. When viewed in conjunction with Figure 22, higher income Missourians and high budget gamers offer the strongest support for loss limit repeal in Missouri when compared to their lower income and low gaming budget counterparts. Although not unexpected, this result lends support to those who opine that loss limit repeal will attract additional high budget and high income gamers to Missouri's casinos. If true, wins per patron, holding all else constant, should rise.

**Question: Would you favor or oppose changing the law so that gaming facilities could be located at other sites in the state besides the Missouri or Mississippi Rivers?**

Figure 25



A slight majority of respondents oppose the expansion of gaming beyond the shores of the Mississippi and Missouri Rivers. See Figure 25. Figure 26 breaks down responses by St. Louis, Kansas City, and out-state Missouri sub-groups. Compared to their Missouri peers in the St. Louis and Kansas City MSAs, respondents from out-state Missouri exhibit a modest relative preference for geographic gaming expansion. The prospect of local economic development and increased employment may explain the heightened preference among out-state respondents for gaming expansion.

Figure 26

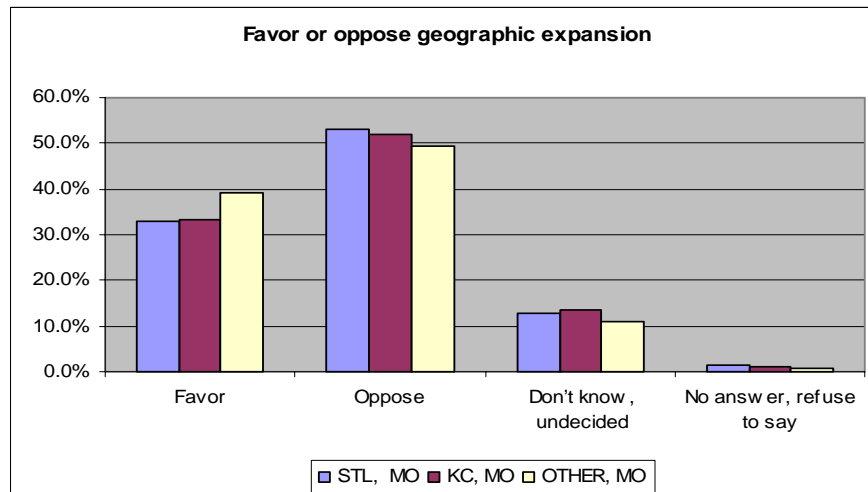
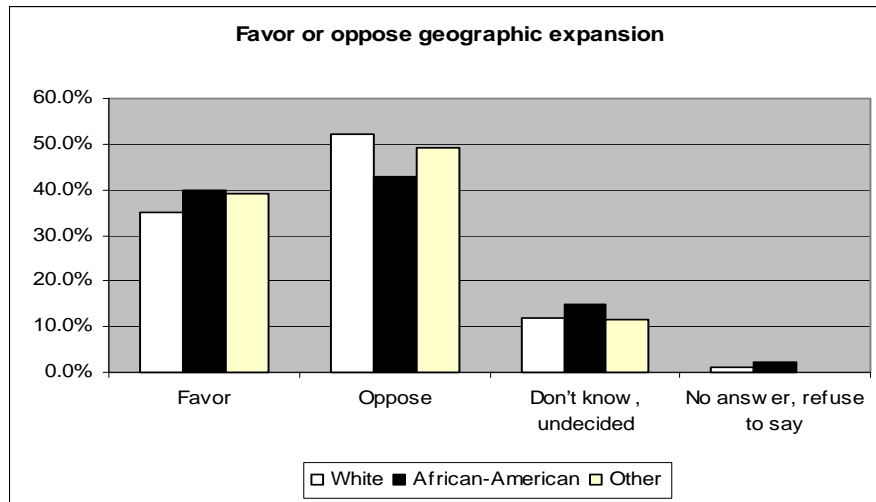


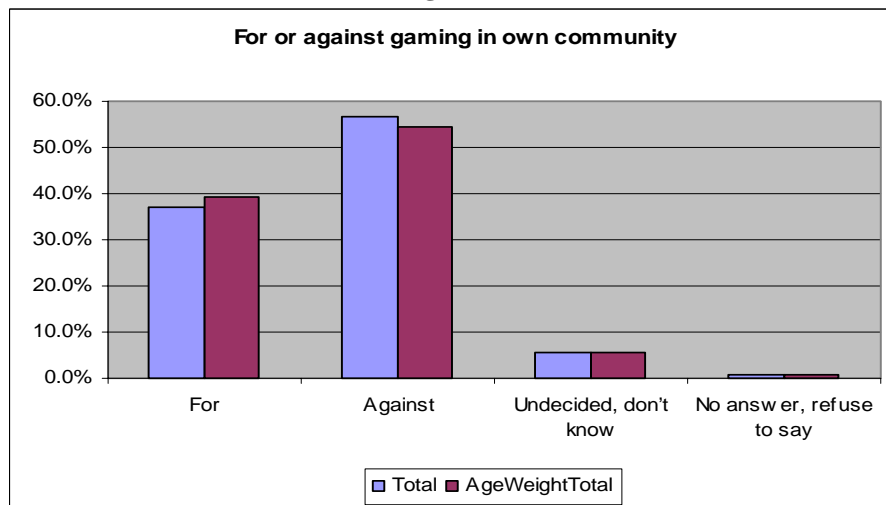
Figure 27 reflects a near equal split among African-American respondents on the issue of geographic expansion in Missouri, in contrast to majority opposition across all racial sub-groups as illustrated in Figure 25. The data support an inference of support for geographic expansion among Missouri's out-state and African-American residents.

**Figure 27**



**Question:** Assume that a proposal is on the ballot to locate a gaming facility in your community. Would you vote for or against the gaming facility?

**Figure 28**



A majority of respondents would vote against a gaming facility in their community. See Figure 28. Consistent with responses reported in Figure 26, however, out-state respondents expressed greater support for own community gaming expansion. See Figure 29.

**Figure 29**

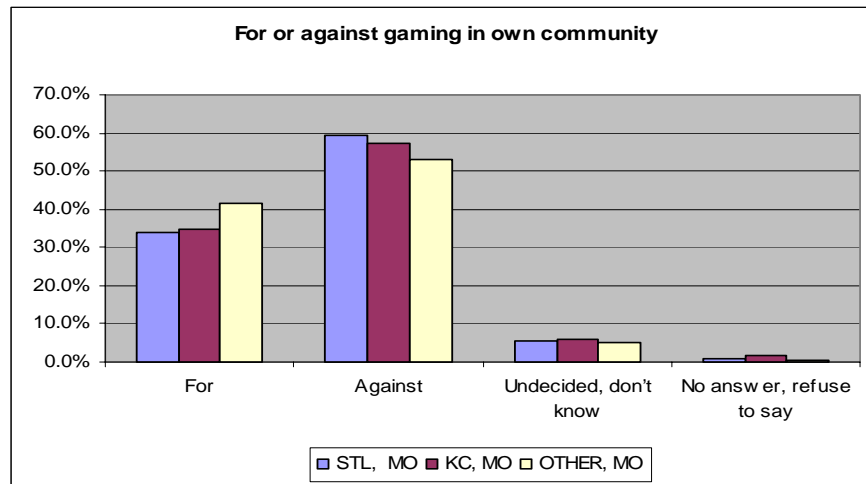


Figure 29 indicates that out-state respondents exhibit a greater preference for geographic gaming expansion in Missouri and for gaming facilities in their own communities, compared to their St. Louis and Kansas City peers. Given the current concentration of facilities in the St. Louis and Kansas City metropolitan areas, these results are not entirely unexpected. But given the previous level of rural opposition to gaming, the data may indicate a trend in favor of greater acceptance of gaming among out-state residents in Missouri.

**Figure 30**

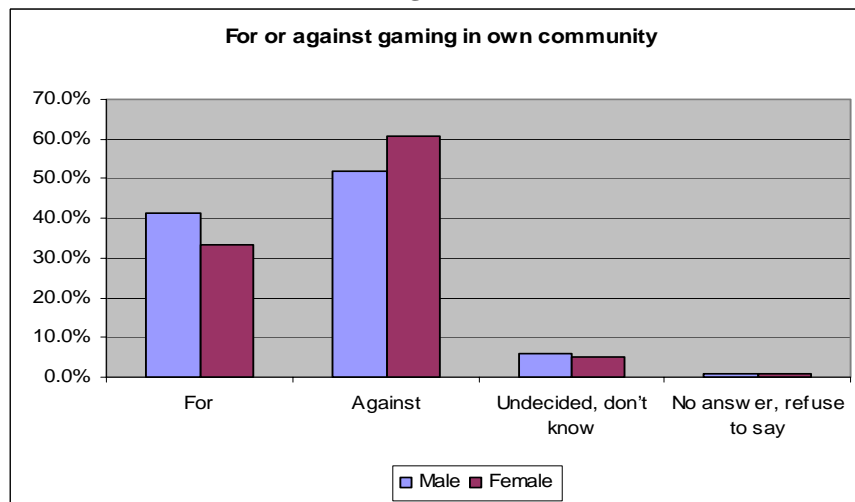
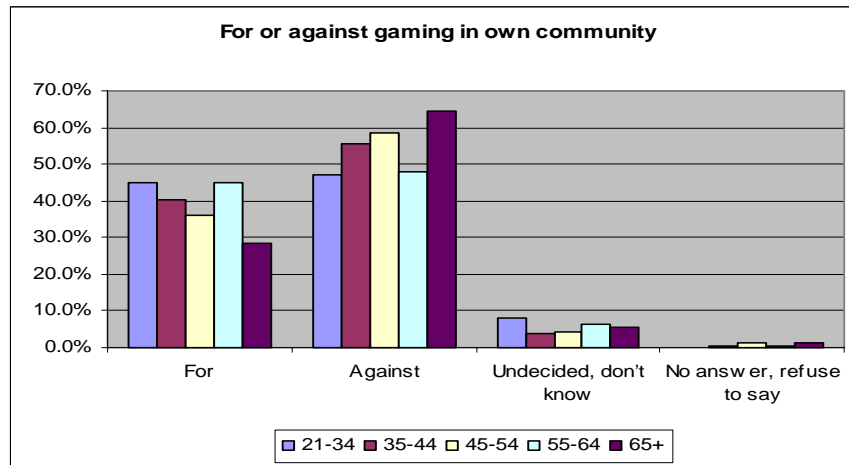


Figure 30 compares the responses of males and females. Females express strong opposition to own community gaming expansion with 60.6% of respondents reporting opposition to facilities in their communities. While a majority of males report opposition also, a relatively strong minority of 41.1% say they would vote for a gaming facility in their community.

Figure 31



Respondents' age is one relevant factor when considering attitudes about own community expansion. Figure 31 divides the sample of responses into age cohorts. Opposition to own community expansion gains in intensity with the age of the cohort. Older respondents are more resistant to own community expansion, whereas younger respondents are more accepting of gaming facilities in their community. Perhaps the perceived risks are greater for older respondents, as many are real property owners with little current income who fear the negative impact a local facility may have on property values.

*Summary of Political Questions and Responses:* A slight majority of Missouri respondents would vote to accept legalized gaming in Missouri if an election were held today. Gaming approval is strong among the younger age cohorts, with substantial support further noted among male and black respondents. Out-state support may be greater than some suspect. In contrast, respondents report decreasing approval for gaming over the preceding 5-10 years, the downward trend deriving greater support from older age cohorts.

A clear majority of respondents support the loss limit. Support for the loss limit is bolstered by the female demographic with two-thirds reporting in favor of the loss limit. The strongest opposition arises from black and male respondents and the highest household income cohorts. Nevertheless, a majority of respondents, even within the demographic sub-groups that exhibit the strongest opposition, support the current loss limit in Missouri.

Consistent with this level of support, respondents would view gaming less favorably if the loss limit were repealed. Among gamers who report gaming budgets, however, those who budget more than \$100 per visit would view gaming more favorably. Assuming that the Missouri loss limit causes high budget gamers to visit gaming facilities outside Missouri more frequently, the data support the supposition that loss limit repeal would decrease the leakage of high budget gamers to competing jurisdictions by increasing high budget patronage at Missouri's casinos. All told, Missouri AGR and WPP would likely increase, holding all else constant.

A slim majority of respondents oppose the expansion of gaming beyond the shores of the Mississippi and Missouri Rivers. Out-state and black respondents exhibit the lowest opposition to the geographic expansion of gaming. Out-state respondents further provide the least opposition to gaming facilities in their own communities. On the other hand, female

respondents and respondents in St. Louis voice the strongest opposition to gaming facilities in their own communities. Opposition generally increases in intensity the older the age cohort of respondents.

**c. Gamer Profiles: Gamer Opinions, Preferences, Habits, and Attitudes (global sample, all gamers, St. Louis gamers, Kansas City gamers, out-state gamers)**

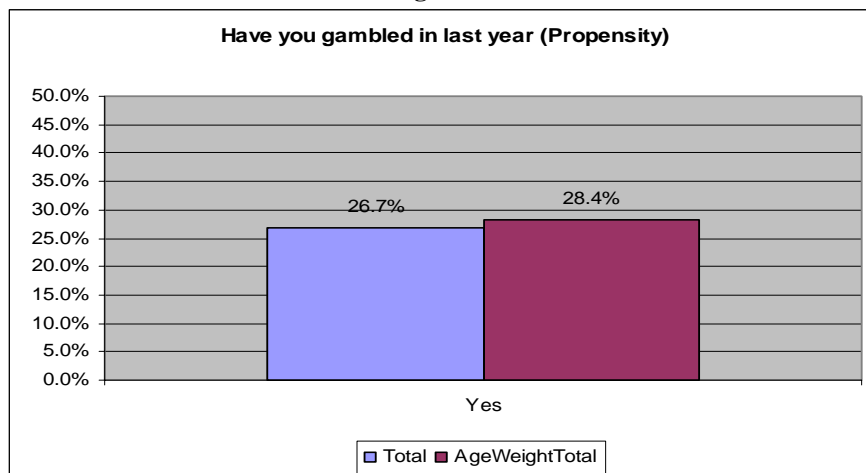
The remainder of the survey examines the subset of the global sample that identifies itself as gamers (persons who have visited a casino for gambling purposes 1 or more times in the preceding 12 months). We begin with the global sample of 2,500 respondents. Global respondents are proportionately drawn from out-state Missouri and the St. Louis and Kansas City MSAs, including the Illinois and Kansas counties in each MSA, respectively. Each respondent is asked if they have visited a casino in the previous 12 months for gambling purposes. Those who answer yes have a “propensity” to gamble and are defined as “gamers.” Next, gamers are asked to disclose their “frequency” of visits to gaming facilities. Gamers are then assigned to their respective gaming regions based upon their place of residence (St. Louis MSA, Kansas City MSA, and out-state market). Gamers are then asked further questions that are specific to their gaming market.

Later, we return to the global sample to estimate its propensity and frequency for gambling at popular gaming destinations outside of Missouri (i.e., leakage of regional gaming patrons to out of region facilities). Out of region gamers are asked a series of questions about their choices and preferences, and are specifically asked to list gaming amenities and attributes that are most important in making their decisions where to gamble. We now return to the survey.

**i. Gaming Propensity and Frequency: St. Louis, Kansas City, and out-state Missouri breakdowns**

**Question (global sample): During the past twelve months, have you visited a gaming facility for gambling purposes?**

**Figure 32**



Gaming propensity measures the percent of the sample that has visited a casino during the preceding 12 months for gambling purposes. Propensity does not measure the volume or frequency of visits to casinos (we examine gaming frequency below). 26.7% of global respondents report having visited a casino during the previous 12 months for gambling purposes. See Figure 32. Propensity to gamble increases when the answers are age weighted. Age adjusted propensity rises to 28.4%, which indicates higher propensities among the younger age cohorts. See Figure 33 below.

**Figure 33**

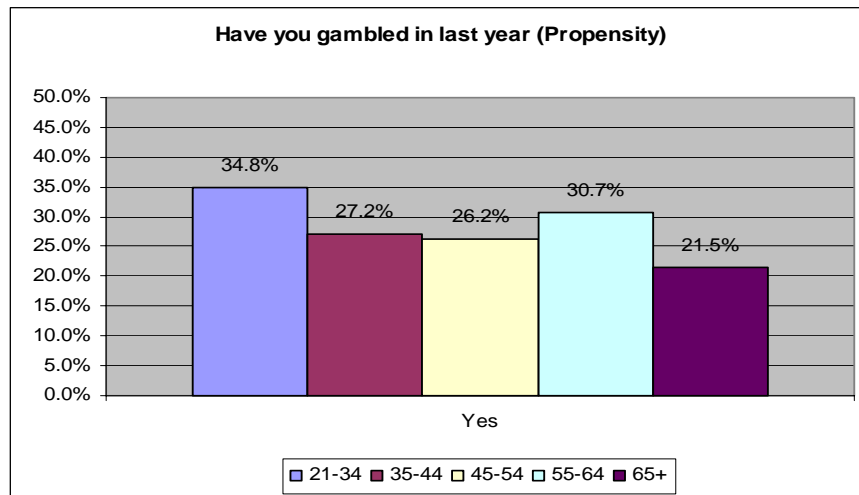


Figure 33 divides the responses into age cohorts. The relatively high rate of propensity for 21-34 year olds explains the rise in the age weighted rate in Figure 32. Propensity across the sample decreases with age, with the exception of the 55-64 cohort. As discussed above, higher propensity alone does not indicate a greater frequency of gaming activity. Gaming visits are a function of gaming frequency, a measure of the number of casino visits per unit of time (e.g., per year).

**Figure 34**

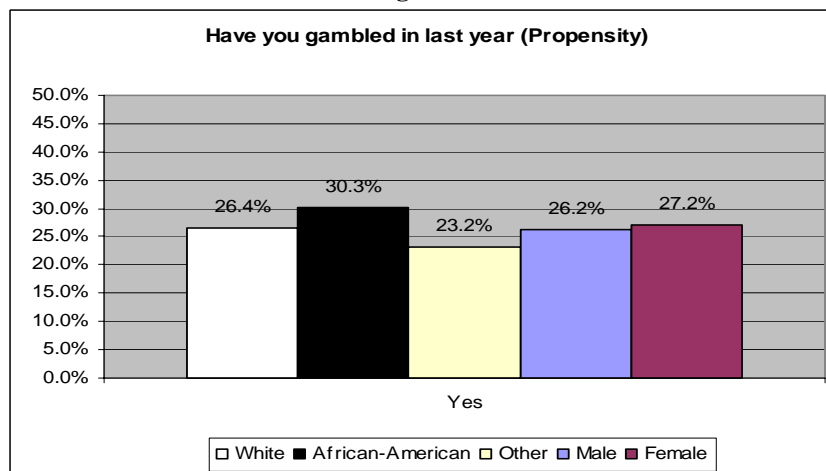
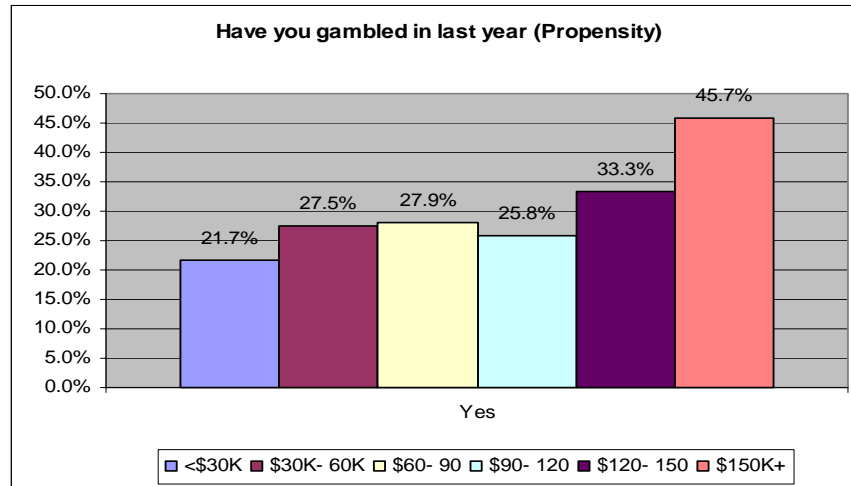


Figure 34 divides the sample into racial and gender cohorts. Survey responses indicate greater propensity among African-American respondents when compared to respondents who

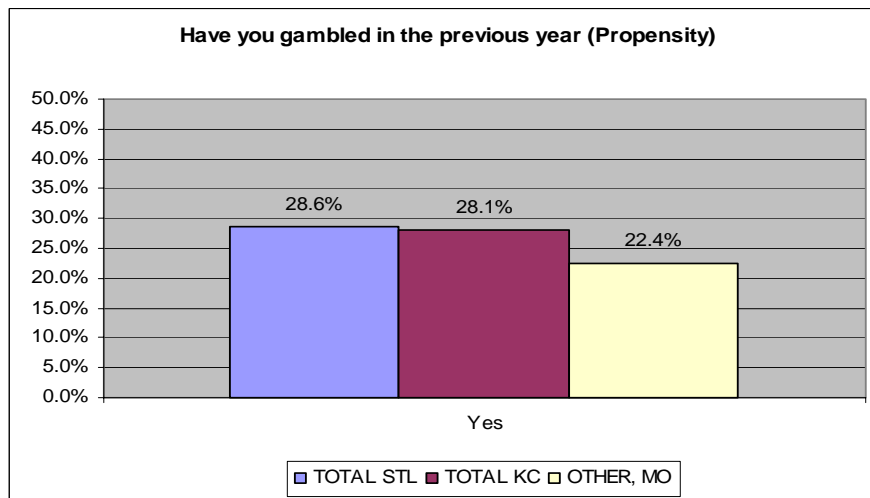
identify themselves as white or other. Female propensities are slightly greater than male, with 27.2% of females and 26.2% of males reporting one or more casino visits in the preceding 12 months. African-American and female propensities exceed the average propensity of 26.7% across all demographic groups.

**Figure 35**



Propensities among household income cohorts reflect an increasing probability of gaming as income rises. See Figure 35. The survey data, therefore, disagree with arguments that suppose a disproportionate attraction to gaming among the lowest income segments in society. Clearly, the attraction of gaming wields its heaviest influence among the highest income cohorts according to the survey results.

**Figure 36**

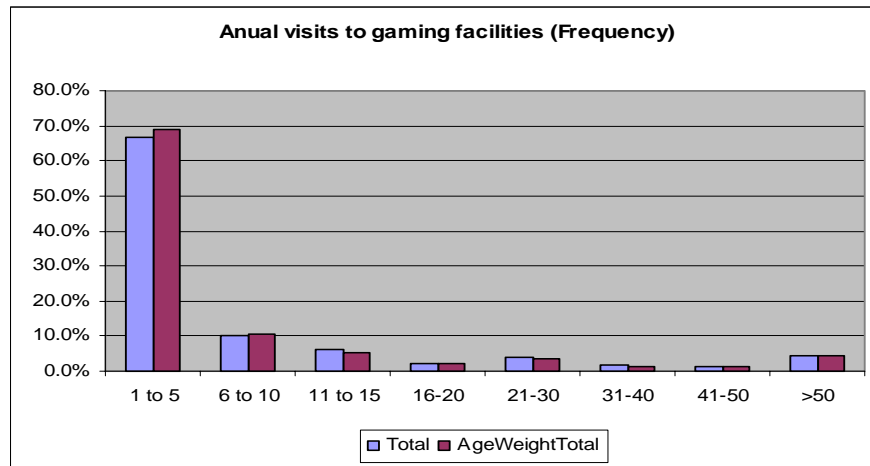


When divided along geographic lines, propensity to gamble rises within urban and suburban populations. See Figure 36. St. Louis and Kansas City propensities exceed the aggregate propensity of 26.7%, whereas out-state propensity lags far behind at 22.4%. The results indicate that gambling propensity increases the closer the nearest gaming facility is to the population in question. Consequently, propensity rates among the out-state Missouri cohort decrease substantially.



**Question (gamer sample):** About how many times have you visited a gaming facility to play slot machines or table games during the past twelve months?

**Figure 37**



The sample of gamers comprises each respondent who reported a propensity to gamble. Gamers were asked how frequently they visited casinos for gambling purposes during the preceding 12 months. See Figure 37. 66.8% of gamers or two thirds gambled at casinos 5 or fewer times during the preceding year. Two thirds of surveyed gamers, therefore, are infrequent gamblers. The age adjusted figures illustrate greater gambling infrequency among the youngest age cohorts. In other words, while the youngest cohorts exhibit higher propensities to gamble (see Figure 33), they also have lower frequencies of gambling visits to casinos.

**Figure 38**

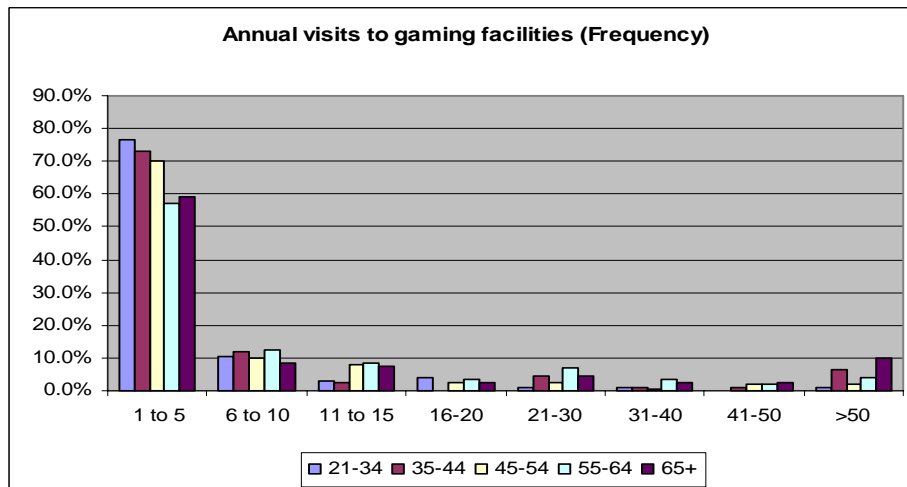
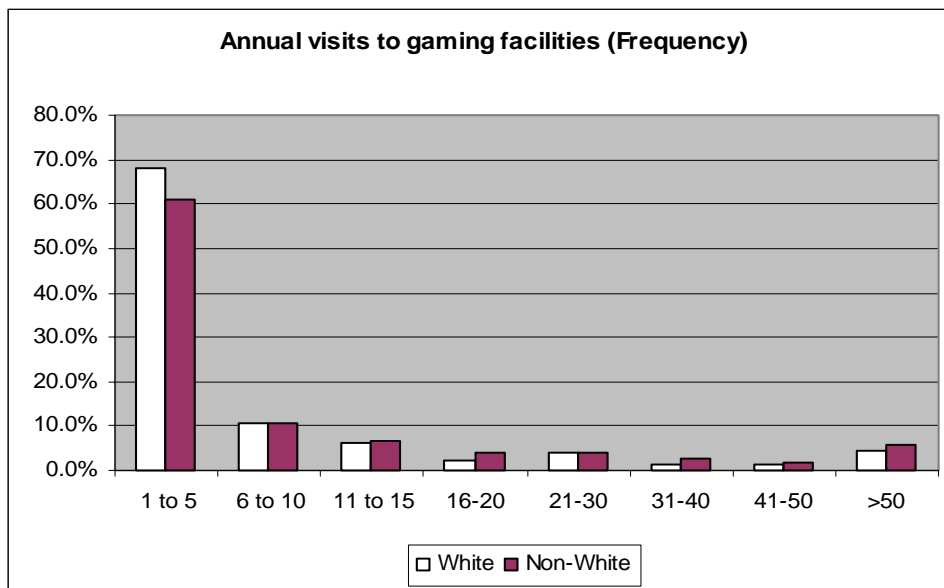


Figure 38 breaks down gaming frequency by age cohort. As discussed above, the 21-34 age cohort exhibits the highest rate of infrequent casino gambling. Infrequency declines with rising age. Gaming frequency, therefore, increases with age while propensity decreases (See Figure 33). Older gamers are less likely to visit a casino at least once, but those who do visit a casino tend to gamble more frequently. Younger gamblers, in comparison, are more likely

to visit a casino at least once but gamble less frequently. Note that 10% of surveyed gamers 65 years of age and older visited a casino 50 or more times during the previous 12 months.

**Figure 39**



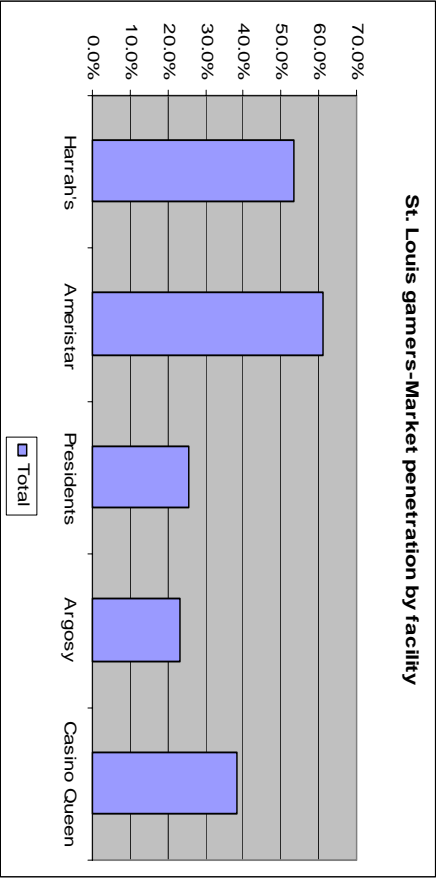
Non-white respondents report higher frequencies when compared to white respondents. See Figure 39. While non-white respondents are less likely to fall into the infrequent category of 1 to 5 visits, non-whites out represent whites in every frequency range above 6 to 10 visits per year. More importantly, non-white gamers (due primarily to heightened African-American propensities) report higher propensities to gamble (see Figure 34) and greater frequencies of casino visits than do white gamers.

## **ii. Facility-Specific Frequencies and Market Penetration**

At this point, we divide the sample of gamers into St. Louis and Kansas City MSA sub-samples for questions that are particular to each sub-region. For each sub-region, gamers are asked to identify each local casino they have visited in the previous 12 months and the frequency of visits to each. Their answers provide an estimate of regional market penetration for each gaming facility. We report the percent of respondents in the sample that have visited each casino at least once in the previous 12 months (market penetration), and the percent of respondents that have visited each facility 10 or more times (repeat visit penetration). While the former measure will include both repeat and single visit patrons (i.e., tire kickers), the latter measure better captures permanent penetration for each casino by including only those patrons who visit a facility 10 or more times in the preceding 12 months.

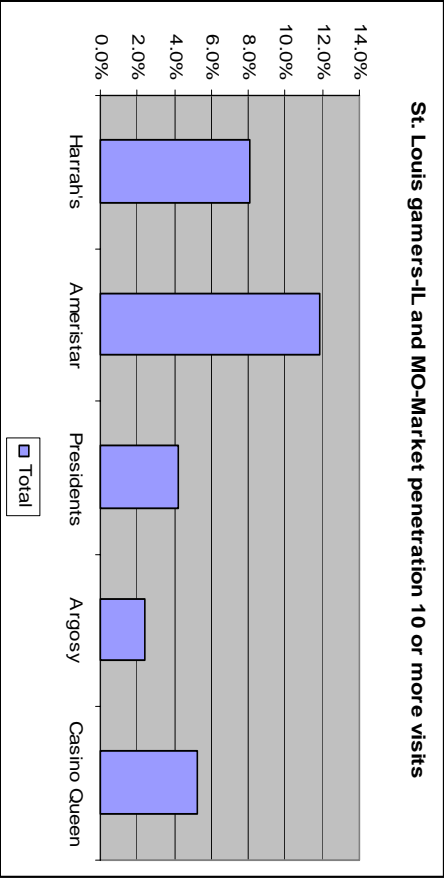
**Question (St. Louis gamers): Which of the following facilities have you visited 1 or more times during the last 12 months, and for each, how often have you visited?**

**Figure 40**



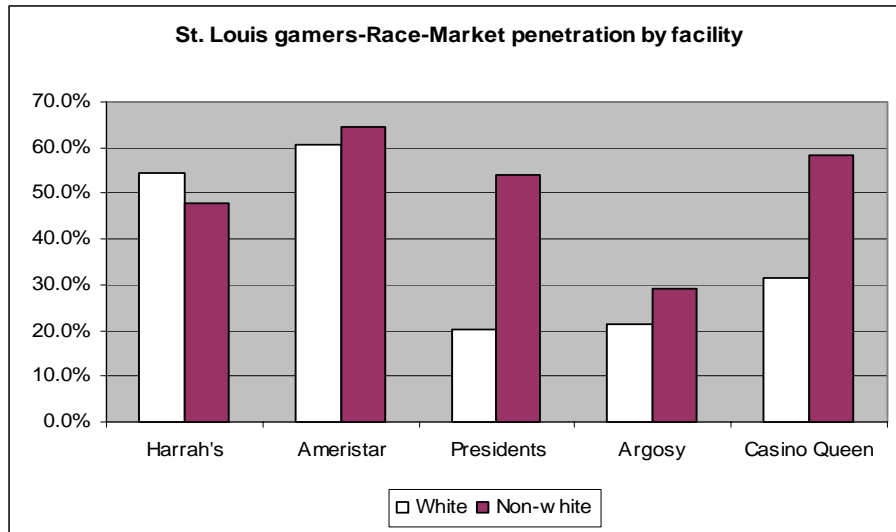
Ameristar St. Charles leads the St. Louis facilities in regional market penetration. See Figure 40. 61% of St. Louis gamers surveyed have visited Ameristar at least once during the preceding 12 months. Harrah's Maryland Heights trails Ameristar in market penetration at 54%. Argosy Alton finished last with only 23% of surveyed gamers reporting having visited during the previous year.

**Figure 41**



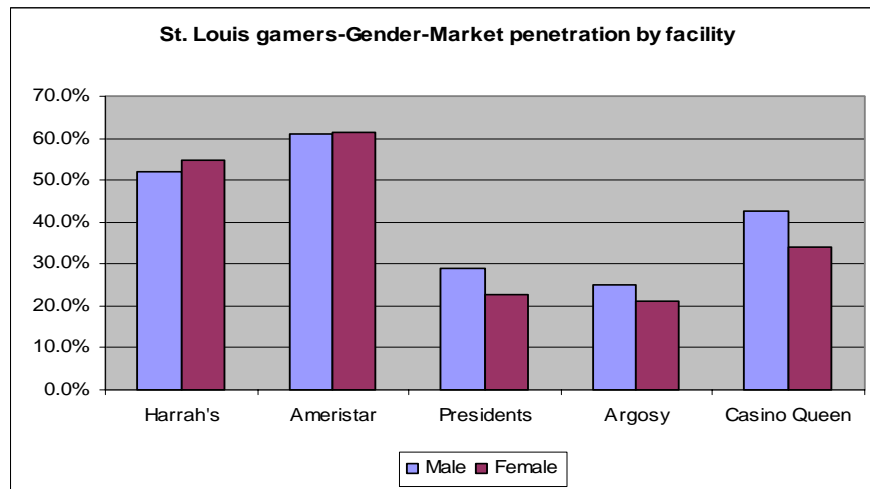
Repeat visit penetration strikes a similar pattern across the St. Louis regional casinos. See Figure 41. 12% of surveyed gamers in St. Louis report having visited Ameristar 10 or more times during the previous 12 months. Argosy again trails the pack at 2.4% repeat visit penetration of St. Louis regional gamers.

**Figure 42**



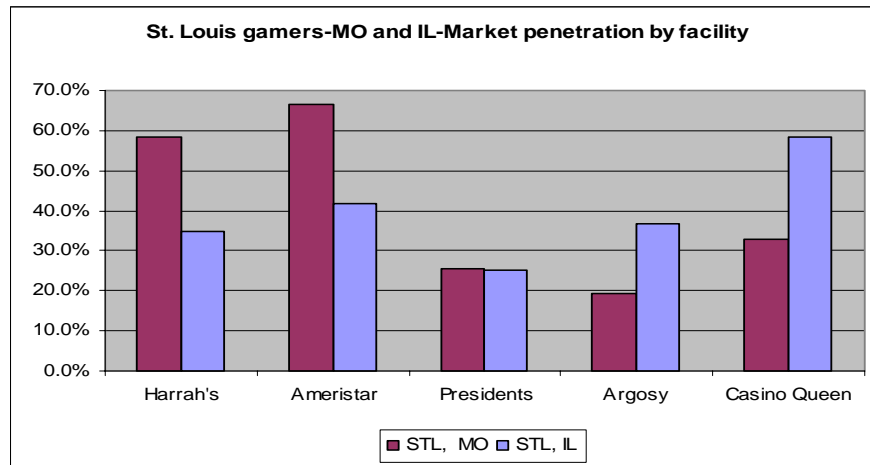
Relative casino penetration rates vary when gamers are divided into separate demographic sub-groups. For example, Figure 42 illustrates greater penetration of the non-white as opposed to white gamer market for each St. Louis facility, with the exception of Harrah's. This indicates a more dispersed pattern of visits for non-white gamers across all facilities when compared to white gamers. Non-white gamers apparently eschew brand loyalty when compared to white gamers and therefore are more likely to sample more facilities. When compared to their non-white counterparts, white gamers exhibit greater brand loyalty and tend to patronize fewer facilities.

**Figure 43**



Gender breakdowns indicate greater brand loyalty among female gamers in St. Louis and an apparent aversion to the facilities located in downtown St. Louis and in East St. Louis. See Figure 43. While Harrah's and Ameristar have greater success attracting the female gamer to its facilities, the President's and the Casino Queen have the relative advantage among male gamers in the St. Louis region.

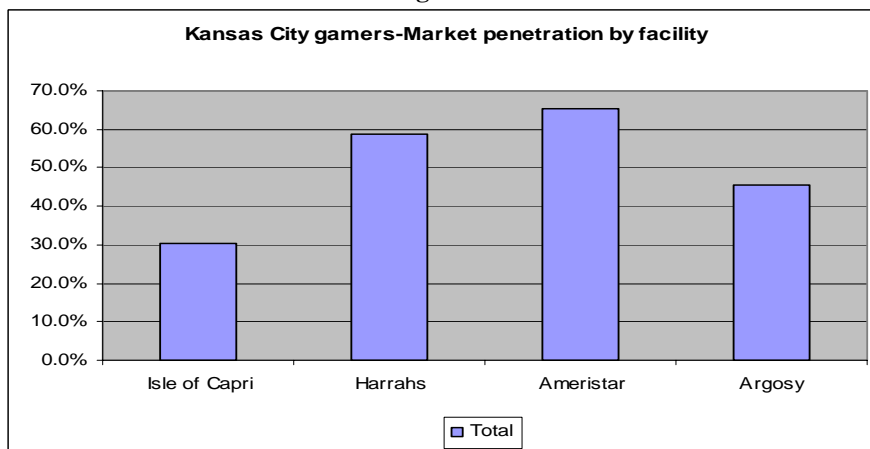
Figure 44



As expected, the data indicate that location matters. Figure 44 illustrates casino market penetration into the Illinois and Missouri gamer sub-groups. The results show that casinos have more success with gamers that reside on the same side of the river and border between Missouri and Illinois. Illinois gamers in the St. Louis MSA favor the Illinois casinos, and Missouri gamers favor the Missouri facilities. When comparing market penetration figures for the President's Casino and the Casino Queen, the latter's greater success in same state penetration may indicate a net flow of patrons from Missouri to Illinois with respect to gamers from both states who frequent facilities in the immediate area of downtown St. Louis and the East St. Louis riverfront.

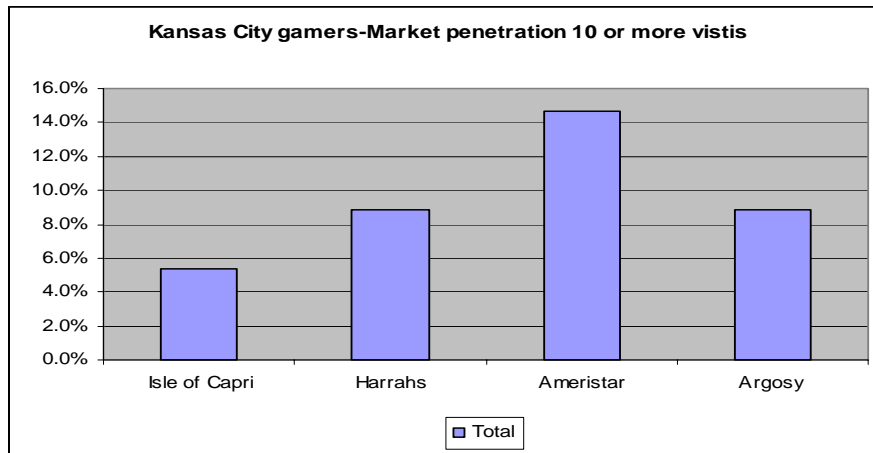
**Question (Kansas City gamers):** Which of the following facilities have you visited 1 or more times during the last 12 months, and for each, how often have you visited?

Figure 45



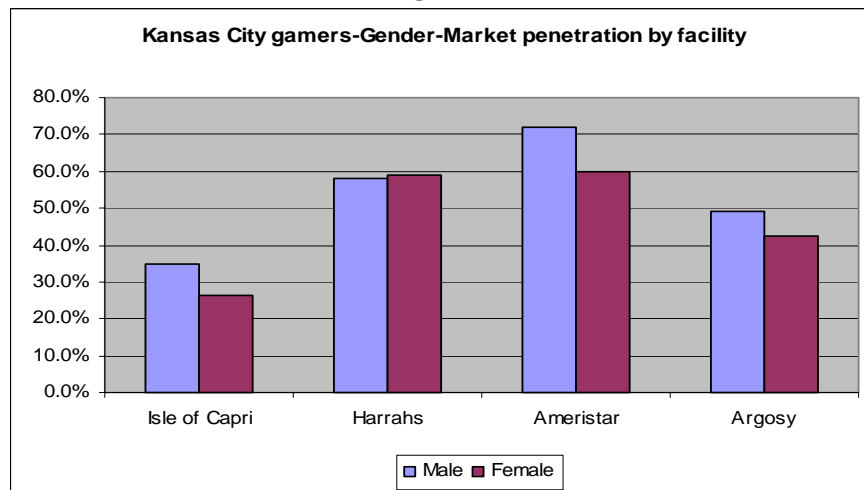
Similar to St. Louis, Ameristar Kansas City leads all Kansas City facilities in market penetration of regional gamers. See Figure 45. 65% of Kansas City gamers surveyed have visited Ameristar at least once during the previous 12 months. See Figure 45. Harrah's North Kansas City trails Ameristar at 59% market penetration. The Isle of Capri trails all Kansas City facilities at 30% market penetration.

**Figure 46**



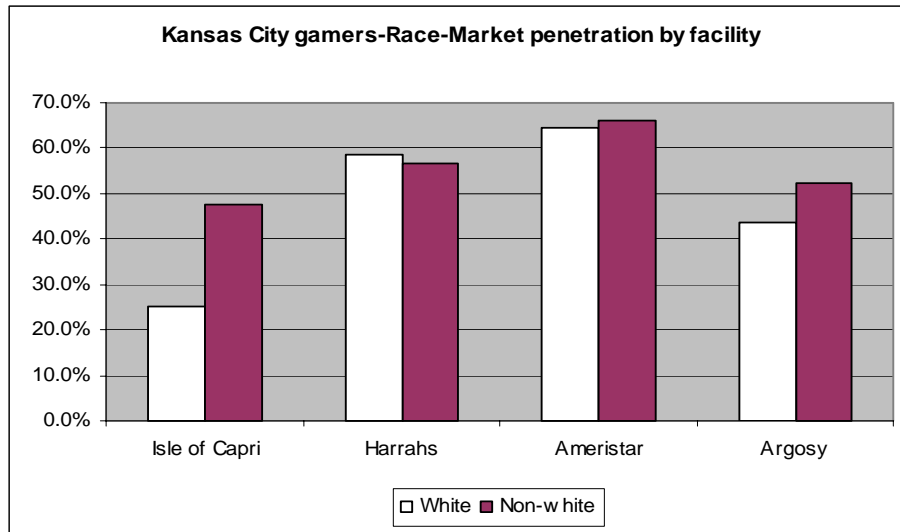
Ameristar maintains its lead in market penetration when measured by repeat visits with 15% of Kansas City gamers surveyed reporting 10 or more visits to its facility during the preceding 12 months. See Figure 46. Harrah's and Argosy trail at 9% each of repeat visit penetration with the Isle of Capri finishing last at 5%.

**Figure 47**



Gender breakdowns indicate greater brand loyalty among female gamers in Kansas City and their relative aversion to the Isle of Capri, Argosy Riverside, and Ameristar casinos. See Figure 47. Harrah's is the only Kansas City facility that has greater penetration into the female than male market segments. Male gamers in Kansas City exhibit less brand loyalty than females and are willing to patronize multiple facilities more frequently. Ameristar's lead in regional penetration arises in part from its greater success in attracting the male gamer in the Kansas City market.

**Figure 48**



Non-white gamers surveyed exhibit a strong relative preference for the Isle of Capri and Argosy Riverside when compared to their white counterparts. White patronage is concentrated at Harrah's and Ameristar. See Figure 48. Non-white patronage in Kansas City, like that in St. Louis, spreads more evenly across all facilities indicating a greater tendency by non-white gamers to reject brand loyalty and to visit different casinos more frequently in the Kansas City market.

**Figure 49**

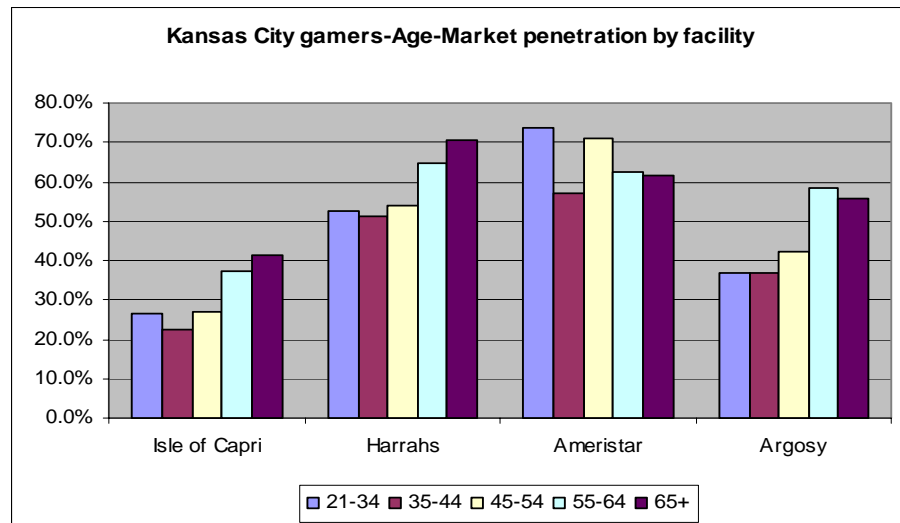
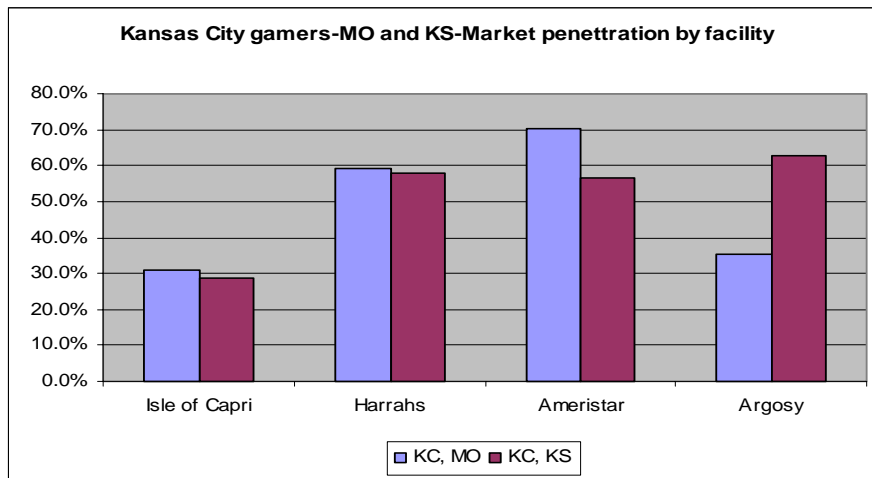


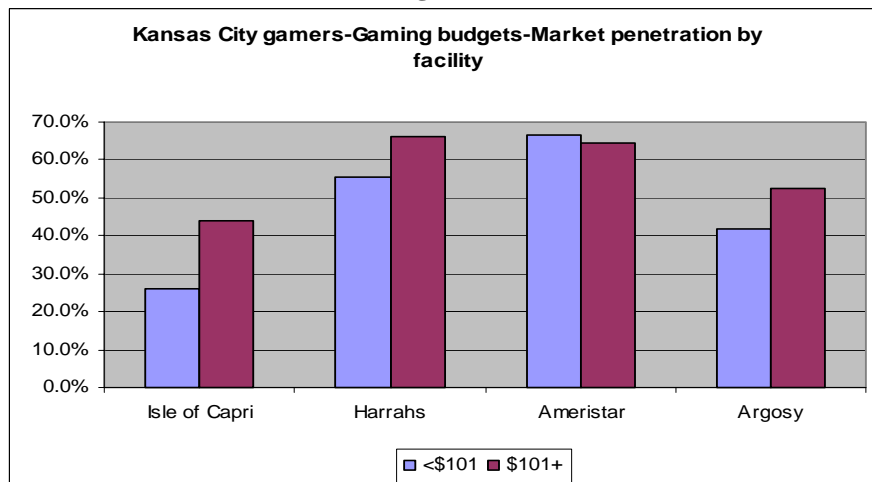
Figure 49 reflects strong brand loyalty and a clear preference for Ameristar among Kansas City's youngest gaming cohort. At the other extreme, the oldest gaming cohorts exhibit the greatest dispersal of patronage across all facilities, indicating decreasing brand loyalty as age increases. Notice the upward slant in bars from left to right for each casino except Ameristar in Figure 49. These casinos receive increasingly greater proportions of each successive age cohort as age rises. Hence, brand loyalty is decreasing with age. This trend is reversed with respect to Ameristar, indicating strong brand loyalty among younger gamers for Ameristar in Kansas City.

**Figure 50**



63% of Kansas gamers surveyed from the Kansas City MSA report having visited Argosy Riverside in the last 12 months. See Figure 50. Consequently, Argosy enjoys deeper market penetration among Kansas gamers than any casino in the Kansas City region. Yet its market penetration among Missouri gamers surveyed reflects greater reliance on Kansas gamers. This imbalance renders Argosy especially vulnerable to gaming expansion in Wyandotte County, Kansas. Without increased Missouri market penetration, Argosy will likely assume the greater harm from the upcoming expansion of gaming in Kansas.

**Figure 51**



66% of Kansas City gamers who disclosed per visit gaming budgets in excess of \$100 (high budget gamers) reported 1 or more visits to Harrah's during the previous 12 months. See Figure 51. Ameristar has the second highest penetration rate among high budget gamers at 64%. Ameristar is the only Kansas City casino with a market penetration rate for low budget gamers greater than that for high budget gamers. These data point to two apparent facts. First, high budget gamers have less brand loyalty and tend to disperse their patronage among facilities more broadly. Second, low budget gamers exhibit a preference for Ameristar among casinos in the Kansas City region.

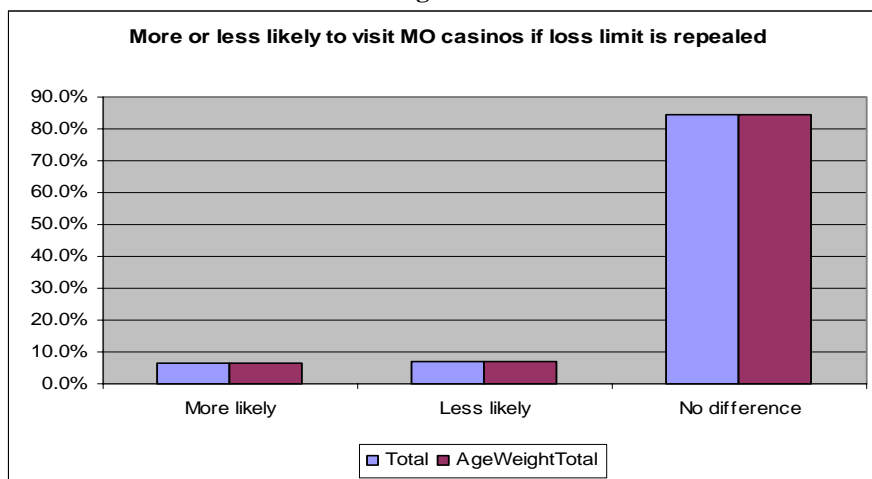


### iii. Repeal of Loss Limit: Impact on Gamers and Missouri's Gaming Facilities

Having concluded the foregoing analysis of Missouri's 2 major metropolitan areas, we now return to the sample of all gamers to discuss Missouri's loss limit. Proponents of loss limit repeal believe the limit discourages visits to Missouri's casinos by local and out-of-state gamers. As a result, Missouri loses gaming and tax revenues to competing markets and states. This revenue leakage has two sources. One arises from leakage of Missouri gamers to out-of-state casinos, the other from foregone patronage when out-of-state gamers decline to visit Missouri's casinos. Because our gamer sample is drawn solely from the global sample of Missouri residents and residents of Illinois and Kansas who live within the St. Louis and Kansas City MSAs, respectively, we focus exclusively on the first source above involving outbound leakage of Missouri gamers.

**Question (gamer sample):** If the \$500 loss limit for Missouri's gaming facilities was eliminated, would you be more likely or less likely to visit casinos in Missouri or would it not make much difference either way?

Figure 52



84% of Missouri gamers surveyed report indifference to loss limit repeal. See Figure 52. Results are not dependent on the age of survey respondents. The majority say loss limit repeal will make no difference in their decisions to gamble at Missouri's casinos. Those who report more and less likely to visit Missouri's casinos constitute 7% of the sample each. Nevertheless, the survey results do provide limited evidence of patron and revenue leakage, which is discussed immediately below.

**Figure 53**

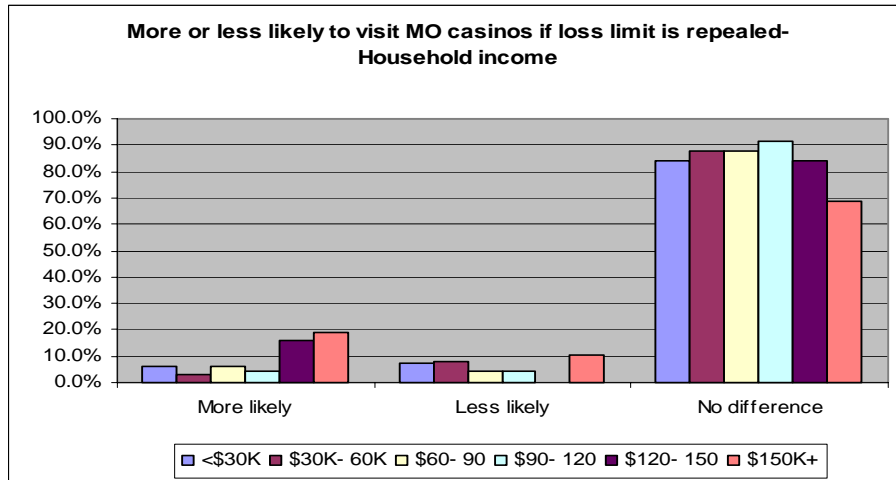
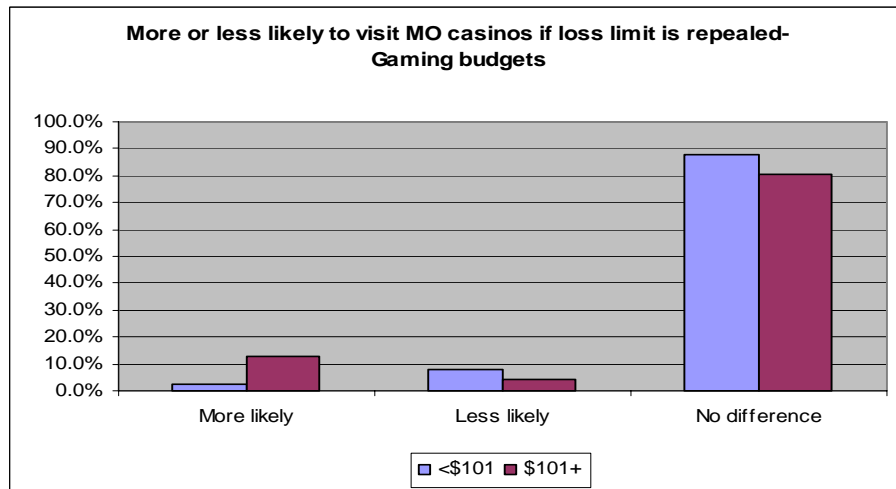


Figure 53 exhibits a strong bias across household income cohorts when estimating the impact of loss limit repeal on casino patronage and revenues. Specifically, high income respondents report greater probabilities of additional visits to Missouri's casinos following the repeal of the loss limit. In contrast to their lower income cohorts, 16% and 19% of gamers surveyed from the 2 highest cohorts, respectively, indicated that they would be more likely to visit a Missouri casino if the loss limit were repealed.

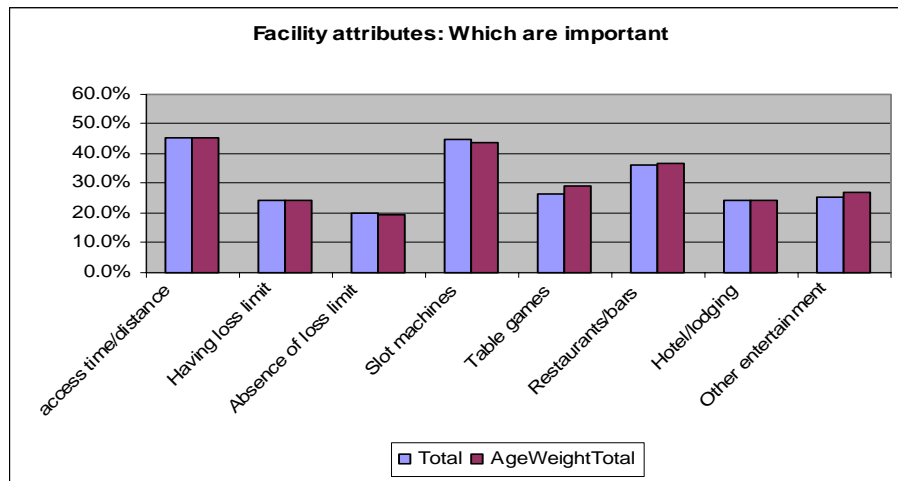
**Figure 54**



This trend is further supported by dividing the sample according to reported per visit gamer budgets. Figure 54 illustrates a discrepancy in reaction between budget sub-groups. When asked for their likely response to loss limit repeal, 13% of high budget gamers reported a greater likelihood of visiting Missouri's casinos. In essence, high budget gamers constitute a disproportionately large share of gamers reporting greater likelihood of visitations after loss limit repeal. The survey, therefore, offers support to the conclusion that while loss limit repeal will have a marginal impact on Missouri gamers, repeal would decrease overall leakage of Missouri's high income and high budget gamers. Decreased leakage, holding all else constant, would promote casino AGR and state revenue growth.

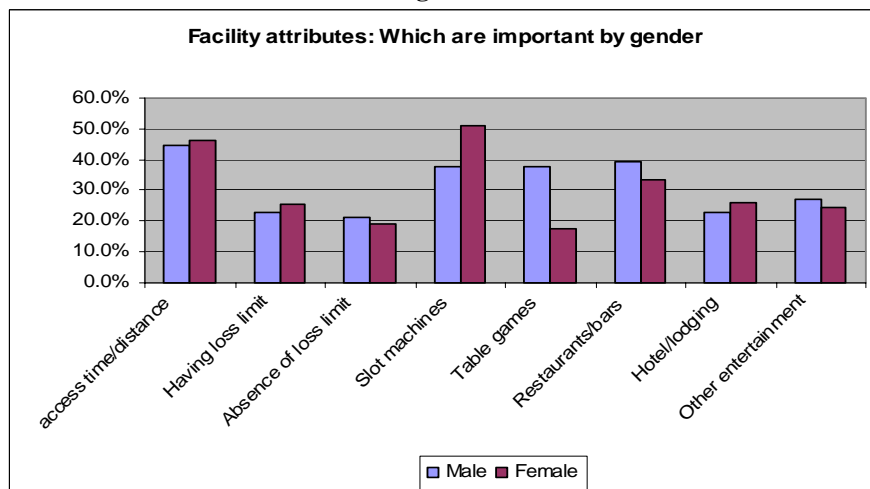
#### iv. Casino Attributes and Features: Which are Most Important to Choice of Facility

Figure 55



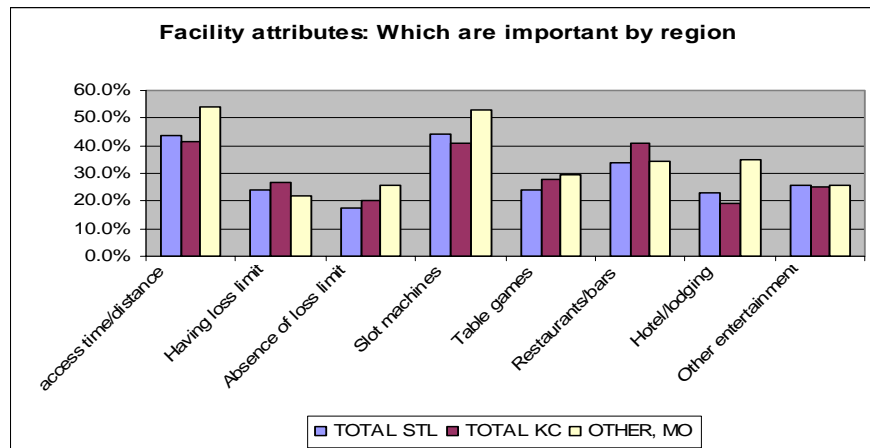
We asked surveyed gamers to identify which casino attributes and features are most important to them when choosing a gaming facility. Respondents identified access time and distance to casino and quality and quantity of slot machines as the most important casino features, with the quality of restaurants and bars following in as third most important attribute. See Figure 55. The younger age cohorts identified table games as more important and slots as less important compared to the entire sample, which is reflected by the age weighted totals. Loss limits registered the lowest rank in importance across the sample of gamers. Only 24% of surveyed gamers identified the loss limit as an important factor in choosing a gambling facility.

Figure 56



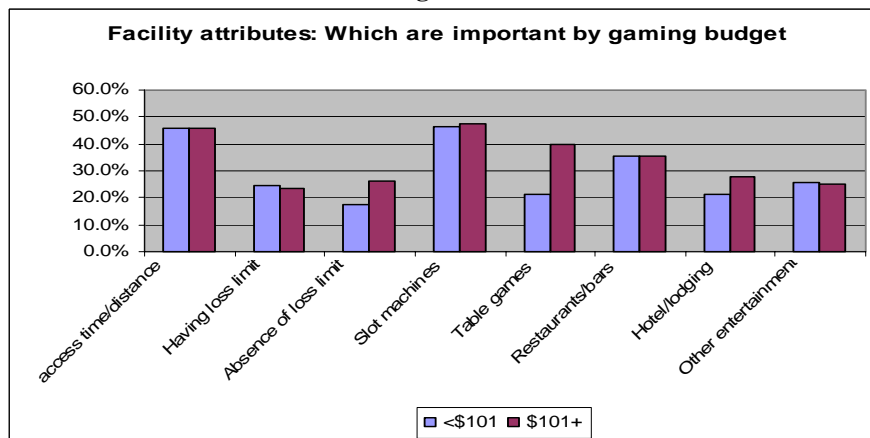
Besides access time and distance which are very important to males and females alike, female gamers picked the quality and quantity of slot machines as most important. See Figure 56. By comparison, males more frequently identified the quality of table games and restaurants and bars as most important. The results demonstrate a major contrast between genders in how they rank slots and table games in level of importance.

**Figure 57**



Figures 55 and 56 illustrate how unimportant the loss limit is to most of the surveyed Missouri gamers. When asked to consider the importance of an absence of loss limits on choice of casino, the percentage of out-state gamers that rate it important exceeded the percentages of St. Louis and Kansas City gamers that answered same. See Figure 57. Out-state and high budget gamers also share a high regard for hotel and lodging features when compared to their urban and low budget counterparts. See Figures 57 and 58. Not surprisingly, high budget gamers assign greater importance to the quality of the table games, the absence of loss limits, and the quality of hotel and lodging amenities when compared to the survey responses of the low budget gamers.

**Figure 58**

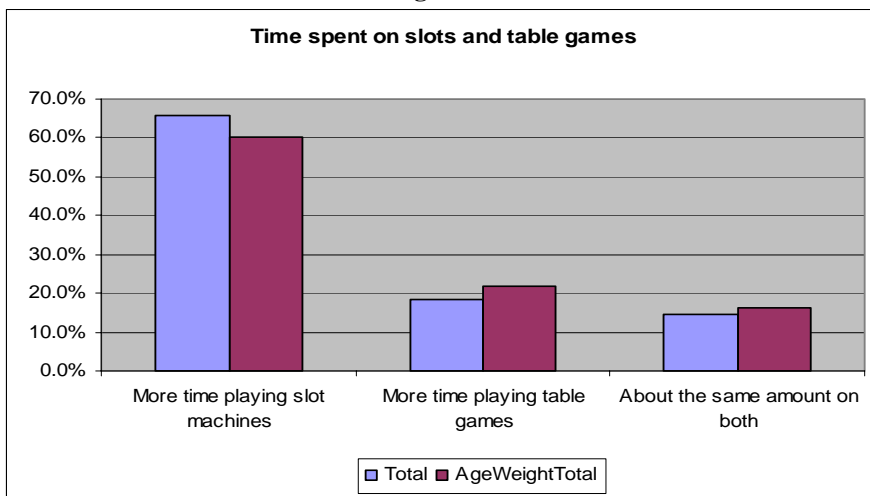


## v. Slots and Table Games: Gamer Preferences

Casinos in Missouri derive approximately 90% of their AGR from slot machine wagers. Consequently, slot usage data helps identify the sources of the vast majority of consumer gaming expenditures in Missouri. We asked gamers the following questions.

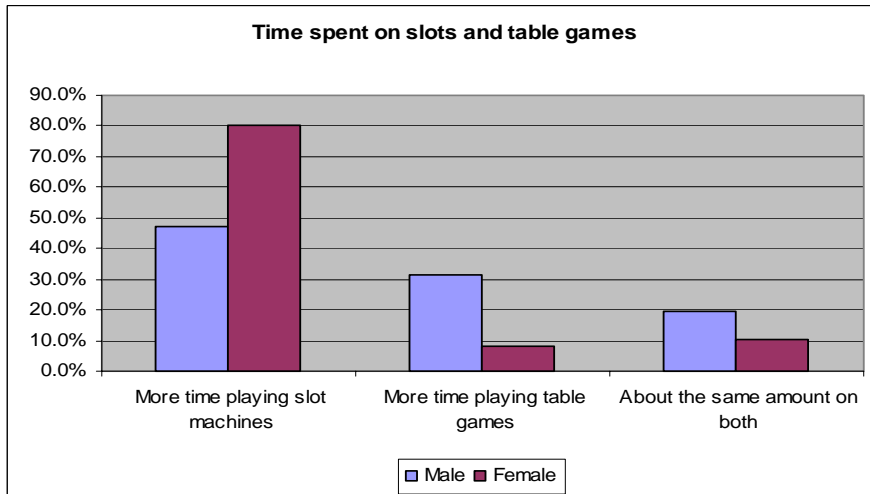
**Question:** When you visit gaming facilities, do you spend more time playing slot machines, more time playing table games, or do you spend about the same amount of time on slots and table games?

**Figure 59**



A substantial majority of surveyed gamers spend more time playing slots than table games at casinos. Gamers in the younger cohorts spend less time on slots than their older counterparts, which is reflected in the age weighted results in Figure 59.

**Figure 60**



Female gaming preferences account for the predominance of slot play among gamers. See Figure 60. 80% of female gamers surveyed reported more time playing slots compared to only 47% of males. A mere 8% of females report greater table game play when gambling, compared to 31% of males. The survey indicates an overwhelming preference for slot play among female gamers in Missouri. Males exhibit a modest preference for slot play, with a substantial minority preferring table games.

Figure 61

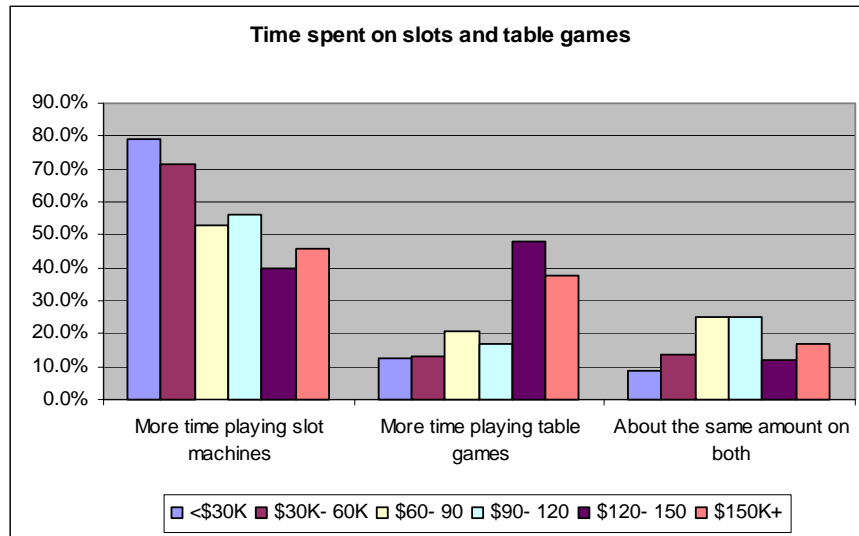


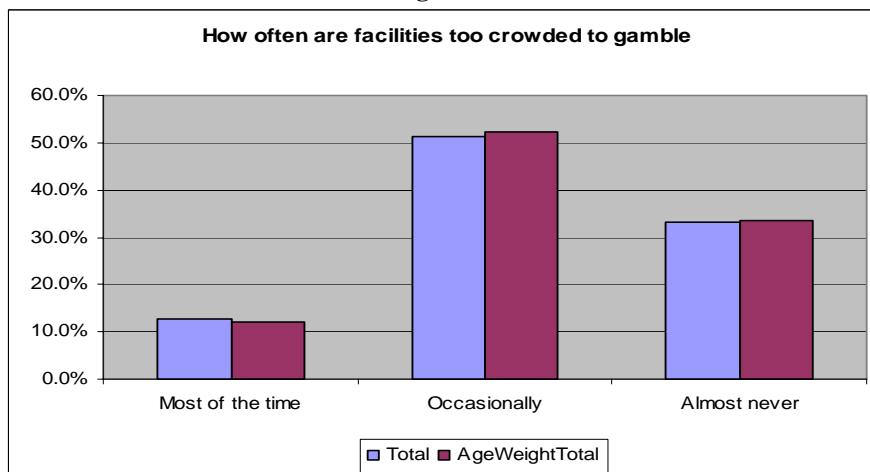
Figure 61 divides the gamer sample into household income cohorts. The data indicate an inverse relationship between slot preference and income. Slot preference increases as gamer household income decreases. Gamers with lower household incomes report higher rates of slot preference.

#### vi. Overcrowding and Unsatisfied Demand

Overcrowded casinos discourage gaming demand by turning away patrons who are willing to gamble. The frequency of overcrowded conditions is one measure of an inadequate supply of gaming facilities. Consequently, gamers were asked how often they encountered overcrowding at casinos.

**Question:** How frequently do you find gaming facilities too crowded with long waits for slot machines or table games?

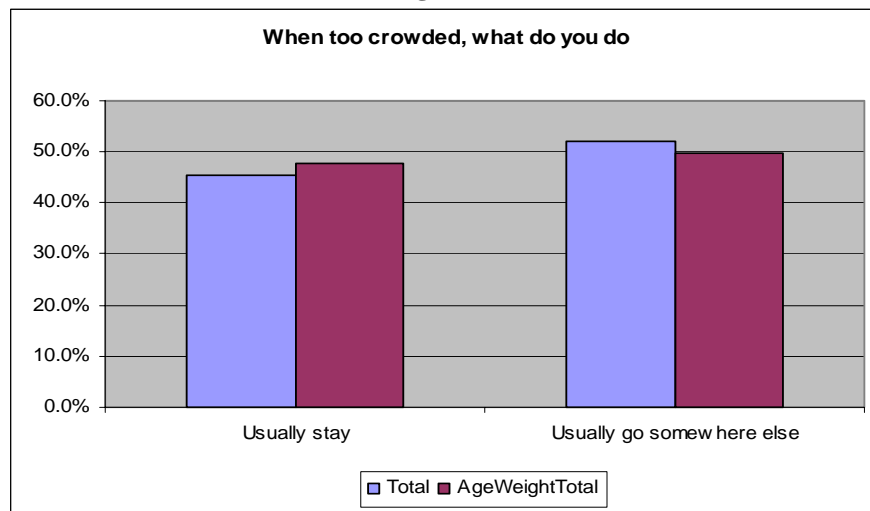
Figure 62



More than 80% of surveyed gamers reported occasional to infrequent overcrowding at casinos in Missouri. See Figure 62. Among gamers who reported overcrowding most of the time, 79% gamble primarily on weekends or divide their casino visits between weekends and weekdays. The remaining 21% who report frequent overcrowding gamble primarily on weekdays. The data tend to support the supposition that overcrowding often occurs on weekends but may occur for a small percent of gamers during weekday visits to a casino.

**Question: When a gaming facility is too crowded with long waits, do you usually stay until you can play the slot machines and table games or do you usually leave and go somewhere else?**

**Figure 63**



52% of surveyed gamers leave an overcrowded casino without gambling. See Figure 63. Younger gamers are more likely to stay, as illustrated by the age weighted results. Given the relative lack of gamers who experience overcrowding on a consistent basis (see Figure 62), overcrowding may have only a modest impact on gaming revenues across the Missouri gaming industry.

**vii. New Facilities in St. Louis and Kansas City and Existing Gamer Response: Increase in Patronage and Admissions or the Substitution of New Facilities for Existing Facilities**

At this juncture, we divide the sample of gamers into St. Louis and Kansas City sub-groups. Gamers are questioned about how they would react to a new gaming facility in their metropolitan region.<sup>12</sup> Gamers are first asked if they would patronize a new gaming facility in their community. Gamers who are likely to visit the new facility on a repeat basis are then asked if they would substitute the new facility for the existing casinos they currently visit (i.e., would they decrease their visits to the existing facilities in order to visit the new facility, or would they continue to visit existing facilities as often as before). Finally, we asked

<sup>12</sup>At this time, Pinnacle Entertainment anticipates the grand opening of Lumiere Place in St. Louis in December of 2007. In the Kansas City region, 8 applicants have submitted proposals to develop and operate a destination gaming facility in Wyandotte County. A grand opening is expected by 2010.

respondents who report a substitution of facilities to disclose which of the existing regional facilities they would be likely to visit less often.

The survey does not address the degree or extent to which a new facility may attract “new” gaming patrons from the general population. The sample is limited to existing gamers. The survey does examine the effect of a new facility on the habits of existing gamers, including their willingness to visit the new facility, the likelihood they will increase total visits to gaming facilities in the region by not substituting between the new and existing casinos, and the extent to which the resulting upward pressure on visits and admissions may be attenuated by the substitution effect of gamers between and among the new and existing casinos in their communities.

#### St. Louis analysis

**Question (St. Louis gamers): If a new gaming facility were to open downtown later this year, how likely would you be to visit it within six months after the grand opening?**

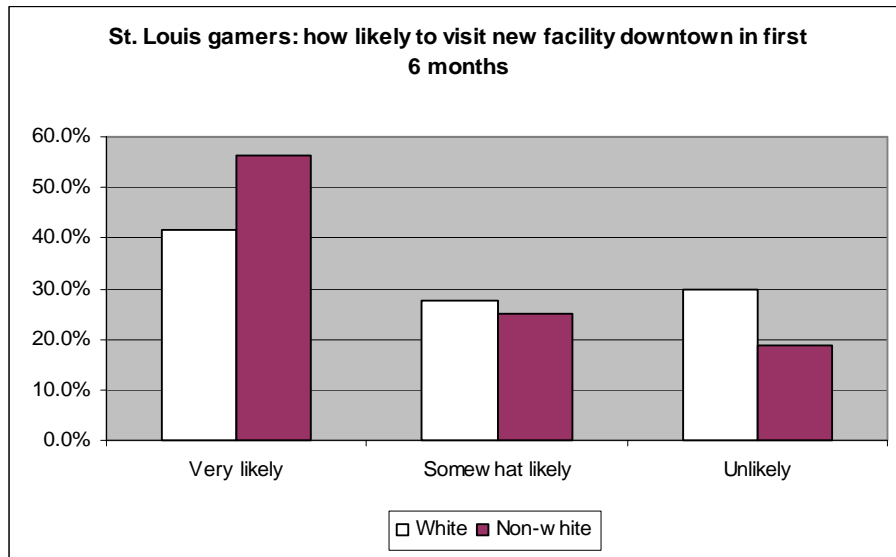
Figure 64



71% of St. Louis gamers surveyed reported a positive likelihood (very and somewhat likely) of visiting a new facility within 6 months of its grand opening. See Figure 64. Figure 65 reflects a heightened likelihood among the St. Louis region’s non-white patron pool. 56% of non-white gamers responded “very likely” to visit compared to only 42% of white gamers in the St. Louis region. The results are consistent with a trend discussed above that indicates a broader distribution of non-white patronage across the region’s gaming facilities (see Figure 42 and related discussion). White gamers exhibit greater brand loyalty while non-white gamers distribute patronage more evenly across the metropolitan region.

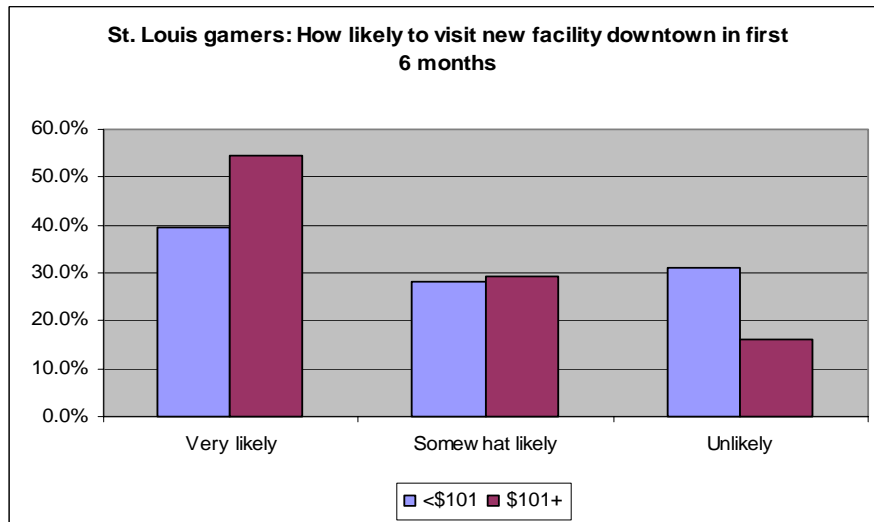


**Figure 65**



High budget gamers (per visit budgets greater than \$100) also expressed a heightened likelihood of visiting a new casino in downtown St. Louis. See Figure 66. 54% of high budget gamers said they are very likely to visit the new casino compared to only 40% of low budget gamers. This pattern is consistent with our earlier discussion about the greater dispersion of high budget patronage across regional gaming markets. See Figure 51 and related discussion.

**Figure 66**



St. Louis gamers who responded as very or somewhat likely to visit a new facility in downtown St. Louis were asked the following question.

**Question (St. Louis gamers who are likely visitors): If you enjoyed the new gaming facility enough to go back, would you visit the other gaming facilities in Missouri and Illinois as often as before or less often?**

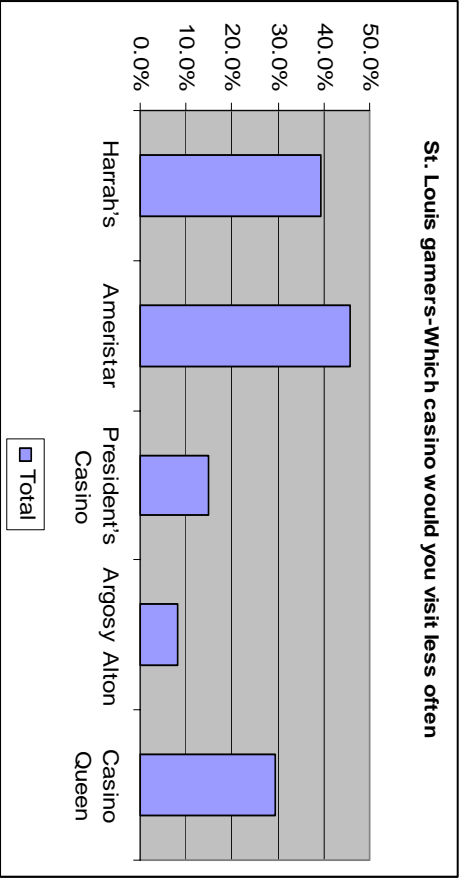
**Figure 67**



Figure 67 indicates that a majority of respondents would consider the new casino as complementary to the existing casinos in the St. Louis region. 58% of the gamers surveyed who would visit the new casino also stated they would not decrease visits to existing facilities, resulting in upward pressure on total visits and admissions in the St. Louis market. On the other hand, gamers who reported they would decrease regional casino visits to existing facilities would therefore substitute the new casino for existing casinos in the region. Consequently, their impact on total regional admissions would be ambiguous and perhaps negligible in either direction. All told, the data indicate a level of growth in casino admissions for the St. Louis gaming market among “existing” regional patrons. This trend, however, should be considered in conjunction with the overriding trend of aggregate decreases in patrons across the Missouri and St. Louis gaming markets over time (see Figures 2 and 3). The influence from the entry of “new” gamers into the regional market following the opening of a new casino is not captured by this question, but is addressed below in the sections discussing our model of gaming expansion and the estimation of impacts on market growth and market shares.

**Question (St. Louis gamers who substitute the new for existing facilities): Which of the following local casinos would you visit less often?**

**Figure 68**

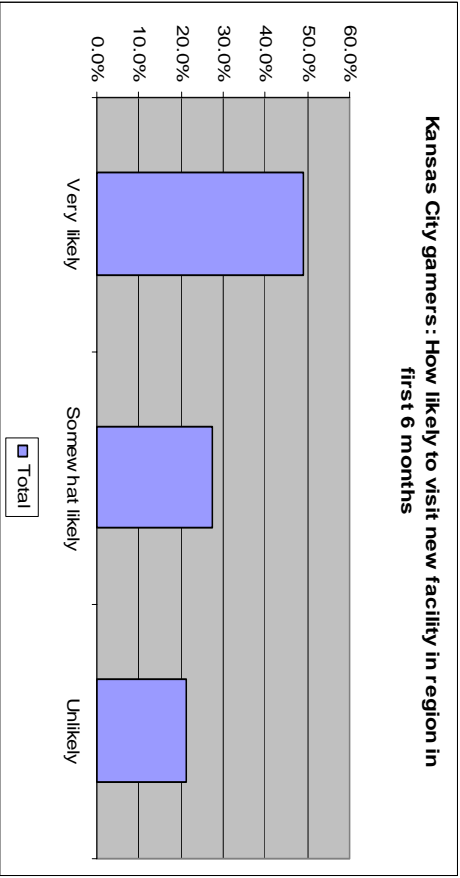


We asked gamers who reported a substitution of facilities to identify which St. Louis regional casino they would visit less often. Figure 68 reports the percent of such respondents for each facility. Caveat: we should expect casinos having greater market penetration (See Figure 40) to experience, holding all else constant, higher substitution percentages. With that caveat in mind, Figure 68 indicates that 46% of substituting gamers will decrease their visits to Ameristar to attend the new downtown casino. At the other extreme, only 8% of these same gamers claim they will decrease their visits to Argosy Alton.

**Kansas City analysis**

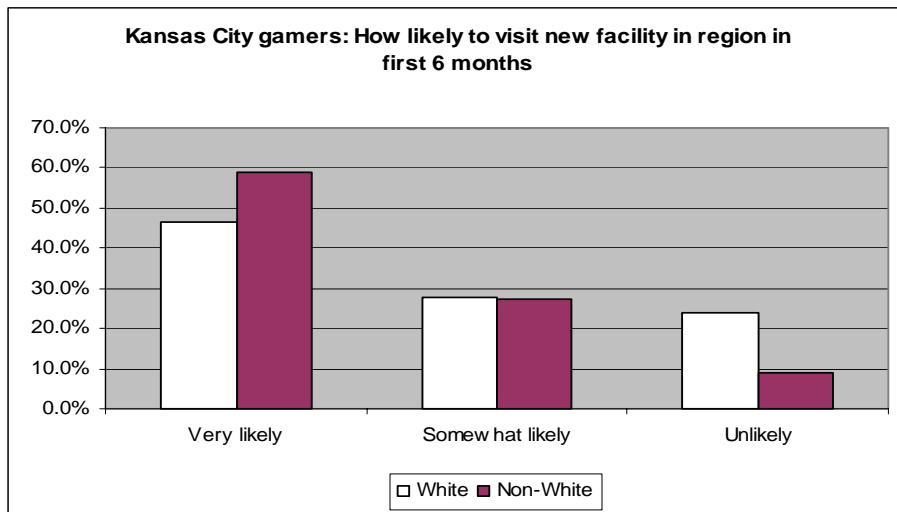
**Question (Kansas City gamers): If a new gaming facility were to open in the Kansas City region in the near future, how likely would you be to visit it within six months after the grand opening?**

**Figure 69**



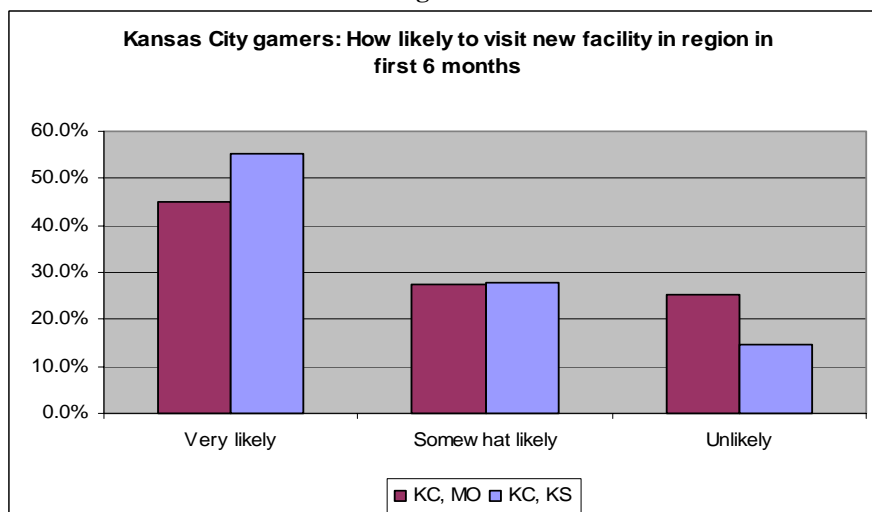
77% of Kansas City gamers surveyed reported a positive likelihood (very and somewhat likely) of visiting a new facility within 6 months of its grand opening. See Figure 69. Figure 70 reflects a heightened likelihood among the Kansas City region's non-white patron pool. 59% of non-white gamers responded very likely to visit compared to only 47% of white gamers in the Kansas City region. The results are consistent with a trend discussed above that indicates a broader distribution of non-white patronage across the region's gaming facilities (see Figure 48 and related discussion). White gamers exhibit greater brand loyalty while non-white gamers distribute patronage more evenly across the metropolitan region.

**Figure 70**



Kansas gamers who reside in the Kansas City MSA exhibit a stronger likelihood to visit a new regional casino. 55% of Kansas gamers surveyed answered as very likely to visit the new regional casino compared to only 45% of gamers in Missouri. See Figure 71. Given Argosy Riverside's exceedingly strong penetration into, and reliance on, Kansas patrons (see Figure 50), a new casino in Wyandotte County, Kansas may have a disparate impact on admissions at Argosy to the extent that Kansas gamers substitute the new casino in Kansas for Argosy Riverside.

**Figure 71**



Kansas City gamers who responded as very or somewhat likely to visit a new facility in the region were asked the following question.

**Question (Kansas City gamers who are likely visitors): If you enjoyed the new gaming facility enough to go back, would you visit the other gaming facilities in the Kansas City region as often as before or less often?**

Figure 72

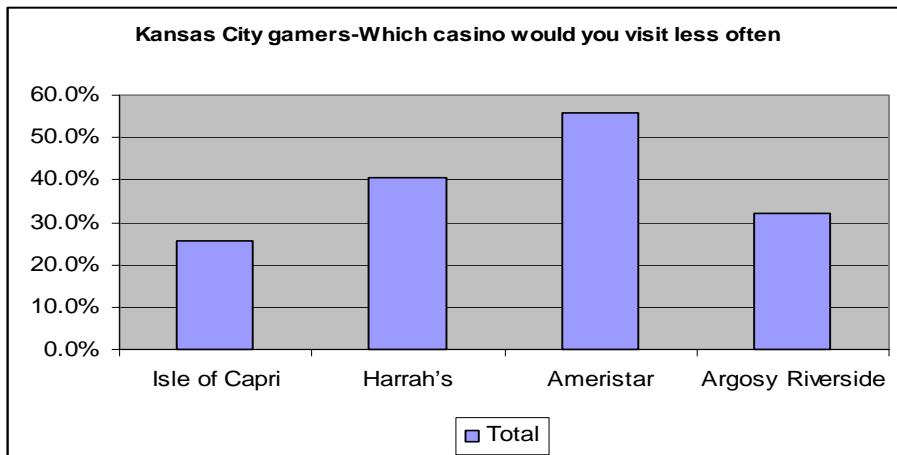


Figure 72 indicates that a plurality of respondents would consider the new casino as complementary to the existing casinos in the Kansas City region. 48% of the gamers surveyed who would visit the new casino also stated they would not decrease visits to existing facilities, resulting in upward pressure on total visits and admissions in the Kansas City Market.<sup>13</sup> On the other hand, gamers who reported they would decrease regional casino visits to existing facilities would therefore substitute the new casino for existing casinos in the region. Consequently, their impact on total regional admissions would be ambiguous and perhaps negligible in either direction. All told, the data indicate a level of growth in casino admissions for the Kansas City gaming market among “existing” regional patrons. This trend, however, should be considered in conjunction with the overriding trend of aggregate decreases in patrons across the Missouri and Kansas City gaming markets over time (see Figures 2 and 3). The influence from the entry of “new” gamers into the regional market following the opening of a new casino is not captured by this question, but is addressed below in the sections discussing our model of gaming expansion and the estimation of impacts on market growth and market shares.

<sup>13</sup> Although a new facility will tend to increase admissions while holding all else constant, with respect to the Kansas City market increased admissions that arise from a new facility in Wyandotte County will not count as Missouri admissions for purposes of the admissions tax.

**Question (Kansas City gamers who substitute the new for existing facilities): Which of the following local casinos would you visit less often?**

**Figure 73**



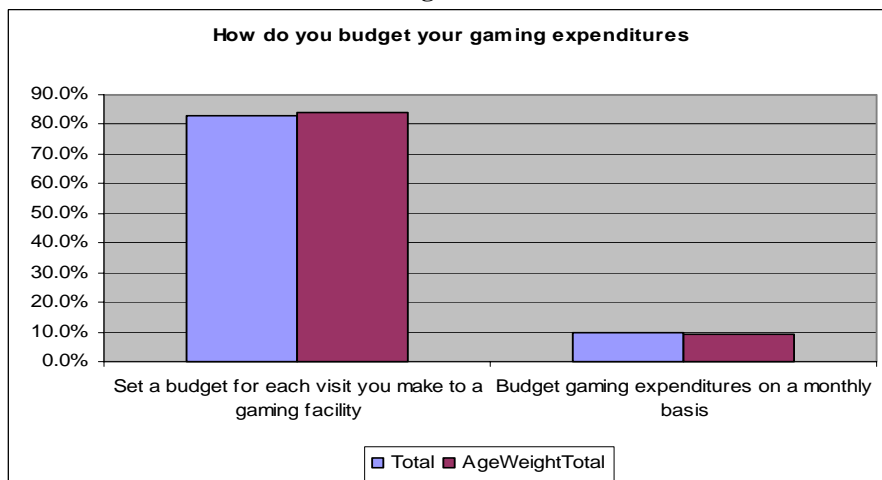
We asked gamers who reported a substitution of facilities to identify which Kansas City regional casino they would visit less often. Figure 73 reports the percent of such respondents for each facility. Caveat: we should expect casinos having greater market penetration (See Figure 45) to experience, holding all else constant, higher substitution percentages. With that caveat in mind, Figure 73 indicates that 56% of substituting gamers will decrease their visits to Ameristar to attend the new regional casino. At the other extreme, only 25% of these same gamers claim they will decrease their visits to Argosy Alton.

### **viii. Gamer Budgets**

We now return to the full sample of gamers. We asked gamers to disclose how they budget for gaming expenditures and how much they budget for each visit to a gaming facility.

**Question (gamer sample): Do you usually set a budget for each visit you make to a gaming facility - OR - Do you usually budget gaming expenditures on a monthly basis?**

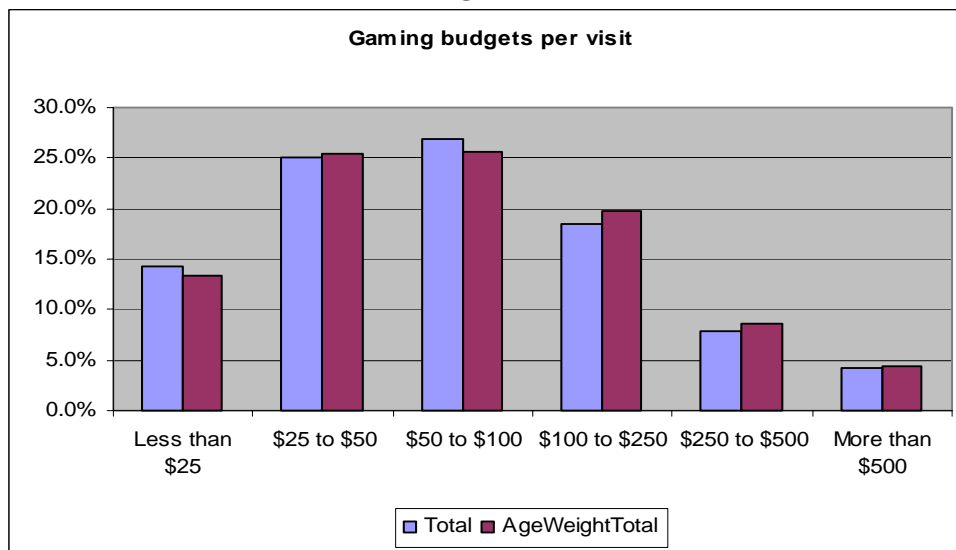
**Figure 74**



A clear majority of gamers budget on a per visit basis. See Figure 74. Given the preponderance of per visit budgeting, we asked this group how much they budget for each casino visit. The results are reported in Figure 75.

**Question (gamer sample):** About how much do you plan to spend for each visit to a gaming facility?

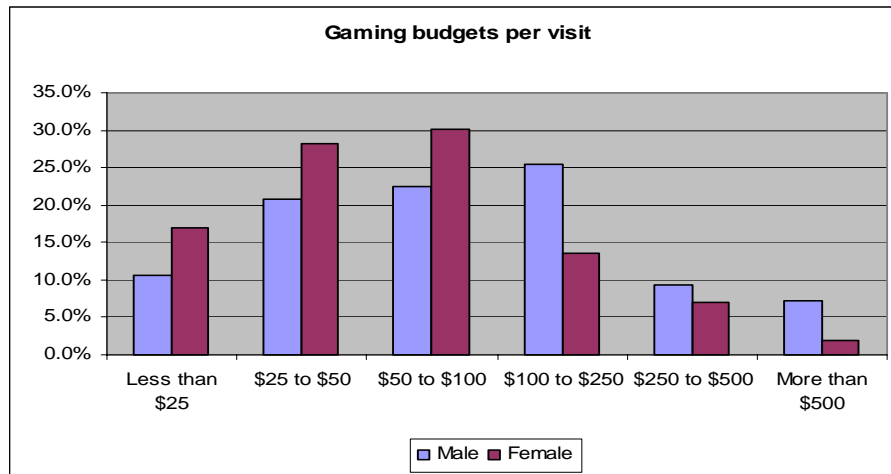
**Figure 75**



A majority of surveyed gamers budget between \$25 and \$100 per visit. Approximately two thirds of respondents budget \$100 and less per visit. See Figure 75. Using a weighted average and employing the budget range midpoints the data indicate an average per visit budget of \$113.97 across the sample of gamers.<sup>14</sup> This estimate exceeds wins per patron (WPP) as reported to the Missouri Gaming Commission by the licensed facilities in Missouri. See Figure 6. The discrepancy may be partially explained by the absence of the Illinois facilities when calculating Missouri WPP. Illinois WPP is greater than St. Louis WPP. Consequently, St. Louis regional gamer budgets may exceed budgets that are implied by the Missouri WPP figure, as many of these gamers gamble at the Illinois casinos. Hence, reported budgets may tend to exceed Missouri WPP. Finally, the survey estimate of per visit budgets is drawn from a sample of gamers, and may exceed the true average budget for the population of gamers due to the standard deviation of the estimate.

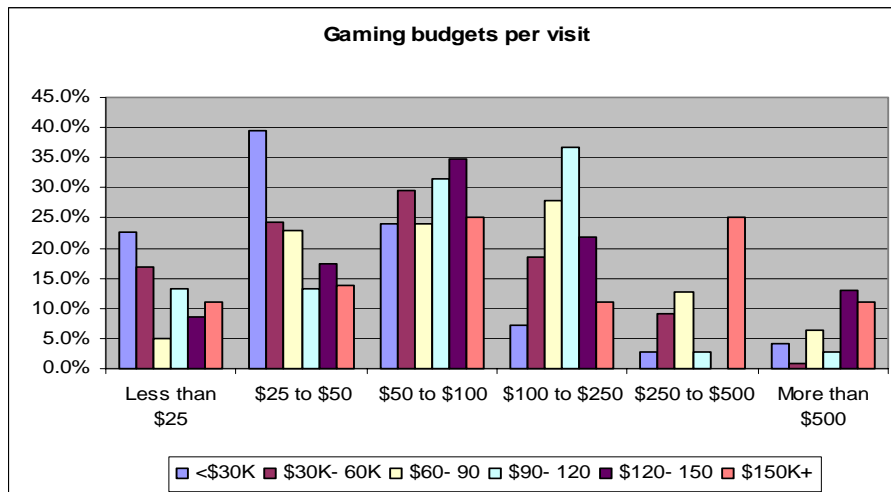
<sup>14</sup> The weighted average is based on the non-age weighted percentages or “Total” response figures. The midpoint for the “More than \$500” answer category is \$501.

**Figure 76**



Female respondents report significantly lower budgets than males. See Figure 76. 75% of females report budgets at \$100 or less compared to only 54% of males. By comparison, 42% of males claim budgets of \$100 or more compared to only 22% of females.

**Figure 77**



When we divide the sample into household income cohorts, lower income gamers report low budgets more frequently, middle income gamers report middle budgets more frequently, and higher income gamers report high budgets more frequently. See Figure 77. The data suggest increasing gaming budgets with increasing income. For example, 62% of gamers with annual household incomes below \$30,000 report per visit budgets at \$50 or less, compared to 25% of gamers with annual household incomes exceeding \$150,000. When we focus on the highest budget categories, 36% of the highest income cohort report budgets in excess of \$250 compared to only 7% for the lowest income cohort. The trend between these endpoints indicates a gradual rise in gaming budgets as gamer income rises. Gaming budgets among surveyed gamers rise with annual household income.



Figure 78

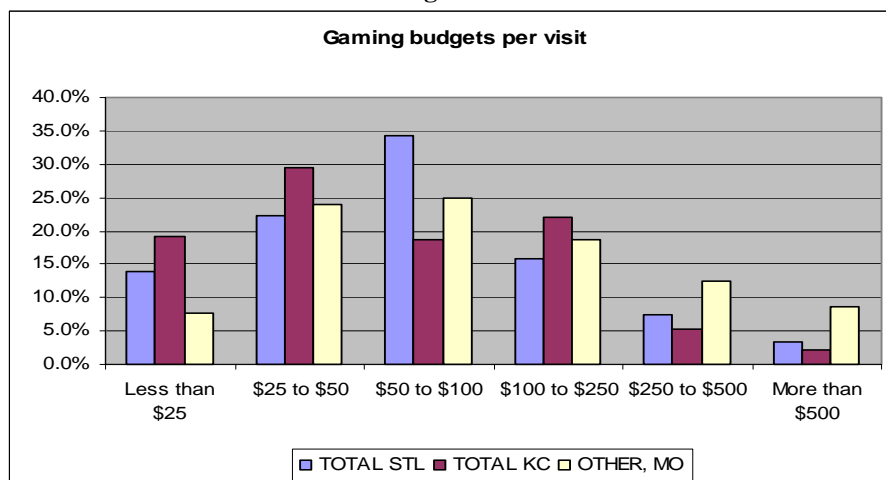


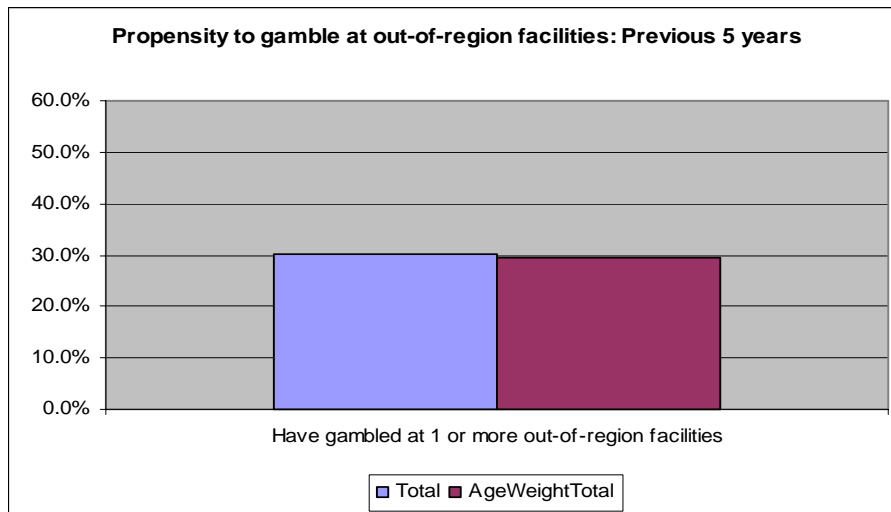
Figure 78 illustrates 2 differences in budgeting trends among gamers in the St. Louis, Kansas City, and out-state markets. First, Kansas City gamers have a disproportionately large presence among gamers with budgets of \$50 or less, but are underrepresented among gamers with budgets of \$250 and more. Second, out-state gamers have a disproportionately large presence among gamers with budgets in excess of \$250.

**ix. Leakage of Missouri Gamers to Out-Of-State Facilities: Propensity, Frequency, and Factors That Attract Missouri Gamers to Distant Facilities**

We now return to the global sample of 2,500 respondents. In this section, respondents are questioned about their propensity to gamble at out-of-state facilities and the frequency of such visits. To some extent, leakage constitutes lost revenues to Missouri's gaming facilities. Granted, many gamers view distant facilities as attractive vacation venues (e.g., Las Vegas, Tunica). As such, the attraction lies not in the superiority of gaming factors such as payouts on wagers or better slots and gaming floor amenities, but in the lure of a distant locale and a change in scenery (a vacation lure). To this extent, these distant locales do not directly compete with Missouri's gaming facilities. They are distinct products and services specially tailored to a market segment. Nevertheless, some portion of the leakage represents foregone revenues as Missouri gamers substitute what they perceive as a superior gaming experience elsewhere for competing experiences in Missouri. Consequently, we ask gamers who patronize distant facilities what gaming attributes are most important in attracting their patronage. The resulting insights may uncover one or more sources for lost gaming and state revenues that arise from the leakage of local gamers to distant facilities.

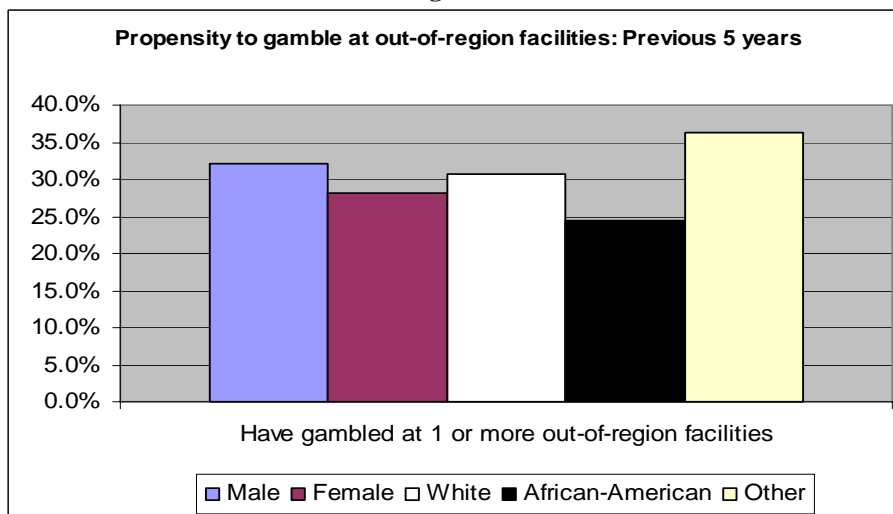
**Question (global sample):** During the past five years, have you played the slot machines or table games at a facility in Las Vegas or other parts of Nevada, Atlantic City, New Orleans, Iowa, Tunica, Mississippi Gulf Shore, or at a Kansas Indian Tribe facility, or any other gaming locale located outside Missouri and Illinois?

**Figure 79**



30% of global respondents report visiting an out-of-state gaming facility for gambling purposes 1 or more times during the previous 5 years. See Figure 79. Recall that propensity to gamble in Figure 32 is 26.7%. Unlike in the previous question, here we are asking for propensity to gamble at specified out-of-state locales over a 5 year period. The difference in controlling time frame from 1 year to 5 probably accounts for the increase in propensity between questions. Simply stated, gamers are more likely to have visited a casino at least once over the course of the preceding 5 years than during the previous single year.

**Figure 80**



Male propensity exceeds female propensity. See Figure 80. 32% of males claimed at least one visit to an out-of-region gaming facility over the last five years compared to 28 % of females. Survey responses also report differences among racial sub-groups. White

respondents report a propensity of 31% compared to 24% for African-Americans surveyed. This reverses the relative propensities observed in Figure 34 for local gambling. Apparently, white gamers are more likely to travel out of state for gambling purposes, whereas African-American gamers are more likely to gamble within their home regions.

**Figure 81**

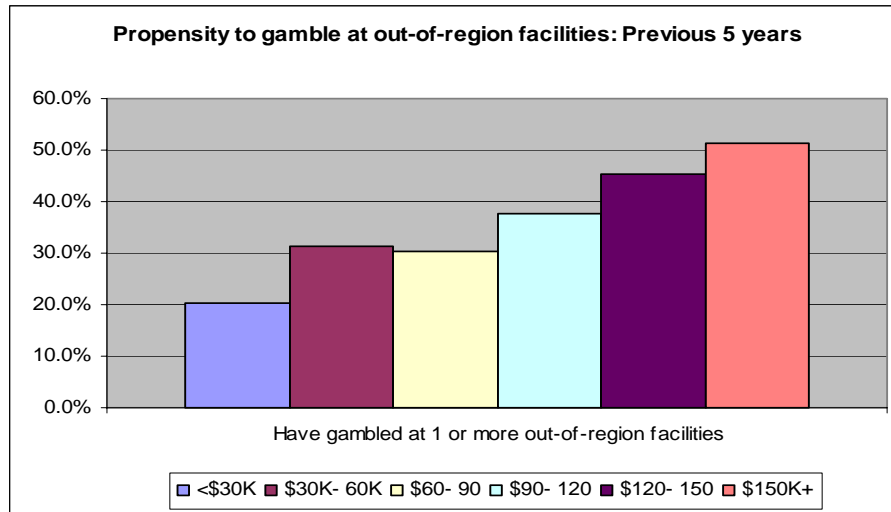


Figure 81 indicates that out-of-region propensity increases with household income. Not surprisingly, individuals who have greater income are more likely to visit distant gaming locales for gambling purposes.

**Figure 82**

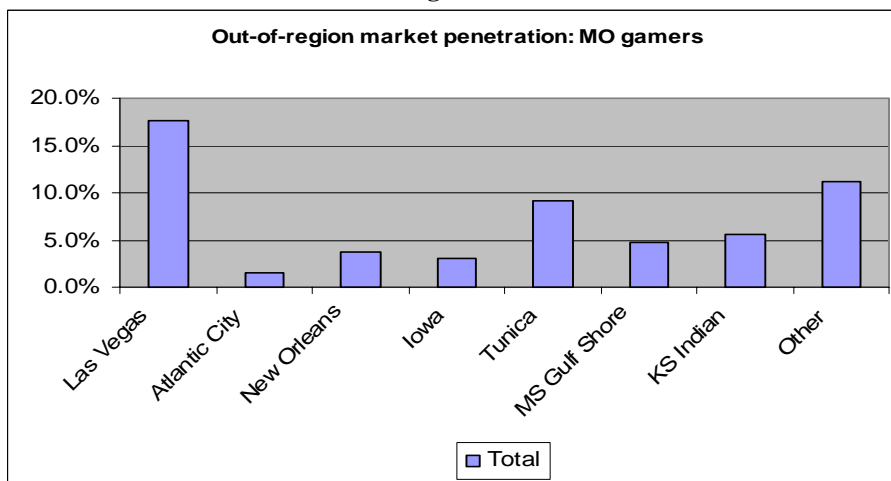
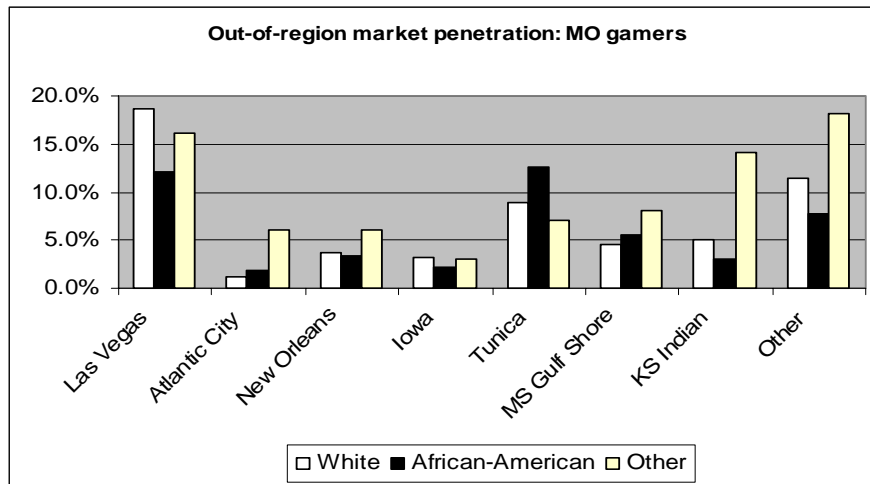


Figure 82 estimates market penetration of the Missouri market by out-of-region gaming locales. For example, 18% of persons in the global sample have visited Las Vegas in the previous 5 years for gambling purposes. “Other” gaming locales (which include locales not specifically identified) exhibit the second highest level of penetration at 11%. Tunica is the clear third choice for respondents, with 9% of the global sample reporting having visited Tunica during the past 5 years. By comparison, Atlantic City and the Iowa gaming facilities exhibit token penetration at best.

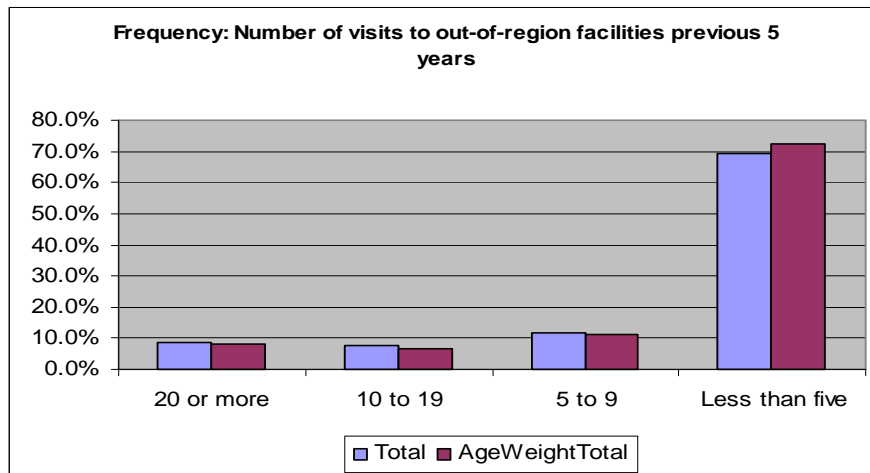
Figure 83



Survey responses show Tunica as having disproportionate success in attracting African-American respondents to its facilities for gaming purposes. See Figure 83. Las Vegas and other gaming locales have the greatest success in attracting white patrons from the global sample of survey respondents.

**Question (global sample that has visited an out-of-region facility in last 5 years): During the past five years, about how many times have you visited a facility outside Missouri and Illinois to play slot machines or table games?**

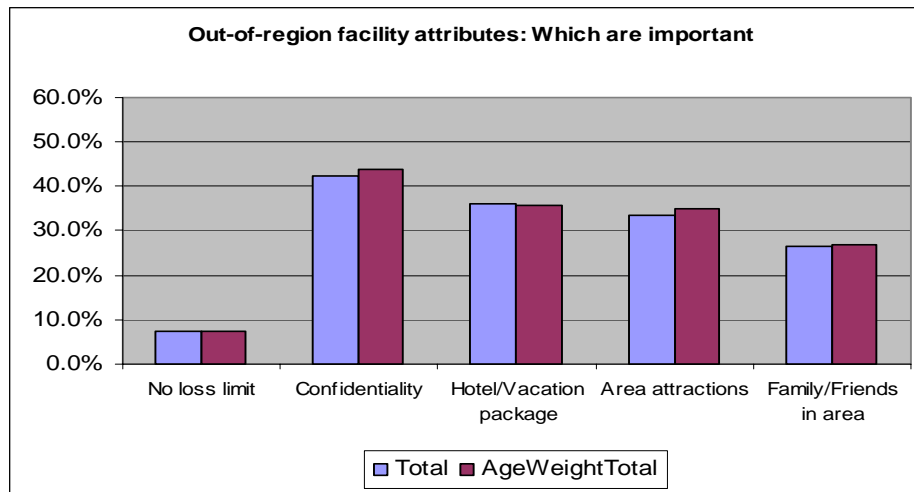
Figure 84



The vast majority of respondents who have visited a distant facility in the previous 5 years report fewer than 5 such visits. Still, almost 10% have visited a distant gaming locale 20 or more times over 5 years. Apparently, the Missouri gaming industry has lost substantial revenues to its competitors in other states. Therefore, we next asked out-of-region gamers to identify those attributes that are most important in deciding if and where to visit a distant gaming locale.

**Question (global sample that has visited an out-of-region facility in last 5 years): Which of the following attributes are important to you in deciding if and where to visit a distant gaming locale?**

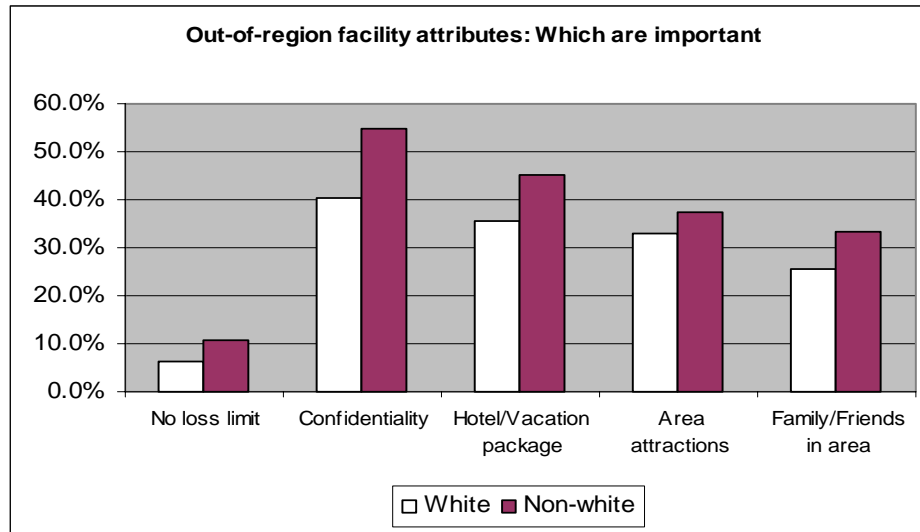
**Figure 85**



The comparison between “No Loss Limit” and “Confidentiality” is most important. We asked distant gamers to disclose how important having no loss limit and not having to disclose personal information is to them in choosing to gamble at facilities outside the region. Because complying with the Missouri loss limit requires each Missouri casino to request and record personal information from each patron as a precondition to entry onto the gaming floor, the issues of loss limit and patron confidentiality are intertwined.

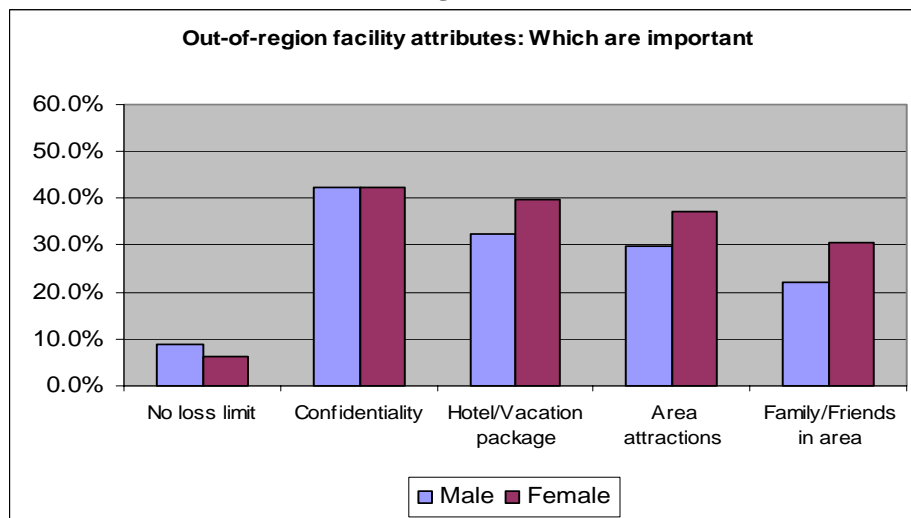
Interestingly, respondents express little concern over a dollar limit on losses. See Figure 85. In fact, a loss limit is the least important factor among the group. Instead, the disclosure of private information to casino operators constitutes the primary concern among gamers. In other words, the greater objection to the loss limit arises from the desire for privacy and confidentiality and not from the dollar limit on losses. This is corroborated by answers to earlier questions that reflect approval of the loss limit among Missourians surveyed. See Figure 19. When the loss limit is discussed in terms of the dollar limitation on losses, respondents are not too bothered by its effect. When the loss limit is presented in terms of the administrative cost of its enforcement (i.e., the disclosure of private information), respondents react differently by expressing increased disapproval.

Figure 86



The relative importance of casino attributes varies among the racial and gender sub-groups. Figure 86 illustrates differences in relative importance among races. Non-white gamers surveyed exhibited heightened sensitivity over confidentiality. At the same time, non-white respondents assign greater importance to each attribute listed when compared to their white counterparts.

Figure 87



Differences among gender are more subtle. See Figure 87. For females, the loss limit is less important when deciding to gamble at a distant locale. Both genders, however, express similar concern over confidentiality. Females assign greater importance than males to attributes that are ancillary to the immediate gaming floor, such as hotel and vacation packages, area attractions, and the presence of family and/or friends in the immediate area of the casino.

This concludes the analysis of the survey and the discussion of gamer profiles. We now move on to discuss the gaming models which estimate the impact and effects of prospective new casinos in Missouri and Kansas.

## Predictions (model-based)

### a. Establishment-data Models

The unit of observation for the establishment (boat) data is the zip code. Revenue, the number of patrons, and the number of visits (admissions) is observed for each boat by zip code.<sup>15</sup> In addition, zip code level demographics were collected for each unique zip code. This yielded a database of approximately 20,000 zip codes with boat performance metrics and demographics. The demographics available are:

- population aged 21+ (the “target” market),
- median income,
- median home value,
- percent of population aged 65+,
- percent of population aged 25+ with college degrees,
- percent of households with children,
- percent of nonwhite and/or Hispanic, and
- household size.

In addition, for each zip code, the following establishment-zip variables were calculated:

- the distance between the centroid of the zip code and each of the gaming establishments
- DUM25 =1 if at least one gaming establishment was within 25 miles of the centroid of the zip code (0 otherwise)
- DUM50 =1 if at least one gaming establishment was within 50 miles of the centroid of the zip code (0 otherwise)
- A gravity variable was calculated for each of the gaming establishments, e.g.,  
$$\text{GRAVITY} = (\# \text{positions} * \text{POP21+} / (\text{Distance} * \text{Distance})).^{16}$$

Table 1 provides a summary of the matching between the provided (raw) establishment data and zip code demographics obtained from the US Census.<sup>17</sup> Non-matches can arise for a variety of reasons: (1) zip code is missing (or 99999) in raw establishment files; (2) zip codes were miscoded (either by establishment or by customer); (3) zip code was a “business” zip rather than residential zip; and (4) coded zip code was outside US (e.g., Canadian postal code). Nonetheless, as can be seen in Table 1, the vast majority of revenue came from zips that could be matched to zip codes with census demographics.

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<sup>15</sup> Establishment data provided (under Confidentiality Agreement) by the Missouri Gaming Commission.

<sup>16</sup> This follows the “standard” definition of attractiveness used in many urban models. #positions is the number of slots plus table positions (from Gaming Commission Annual Report for 2006). An alternative definition using square feet (rather than the # of positions) was also tested.

<sup>17</sup> ZCTA zip-code data from US Census.

**Table 1: Establishment to Zip code Matching Results**

Boat	Revenue			# of Zip Codes		
	Matched	Provided	Matched	Matched	Provided	Matched
kc-1	\$ 238,788,030	\$ 241,441,654	93.1%	16,704	18,034	98.9%
kc-2	\$ 186,639,569	\$ 189,074,567	93.5%	13,501	14,799	98.7%
kc-3	\$ 78,576,652	\$ 79,550,489	87.5%	12,507	13,877	98.8%
kc-4	\$ 147,588,341	\$ 149,563,476	92.2%	11,452	12,685	98.7%
stl-1	\$ 279,053,328	\$ 289,693,442	95.4%	16,098	17,302	96.3%
stl-2	\$ 311,254,875	\$ 318,993,400	99.7%	16,828	19,346	97.6%
stl-3	\$ 60,027,213	\$ 60,556,245	86.1%	13,820	15,515	99.1%
os-n-1	\$ 22,112,862	\$ 24,826,745	89.1%	5,629	6,334	88.9%
os-w-2	\$ 35,063,824	\$ 36,140,212	97.0%	6,164	6,791	90.8%
os-c-3	\$ 75,339,531	\$ 76,837,667	98.1%	11,678	13,508	86.5%
os-s-4	\$ 28,320,800	\$ 29,898,605	94.7%	10,059	11,673	86.2%

To eliminate the impact of “distant visitors”, the sample was trimmed to zip codes within a more manageable distance. Following a “80-20” type rule and some experimentation, 100 miles was utilized as the appropriate distance to consider as “local”.<sup>18</sup>

For each variable of interest (REV, PATRONS, ADMISSIONS), several different model specifications were tested. All models utilized standard zip demographics (e.g., income) and different mixes of zip-establishment variables. For example, some models contained only (maximum) gravity and (minimum) distance while others included the binary variables (for existence of establishment within 25 and/or 50 miles) as well as (minimum) distance and (maximum) gravity. Lastly, models were estimated in levels (REV) and in “per capita” forms (REV/POP21+). Generally, the models utilized ordinary least squares (OLS) regression; though the share models were estimated utilizing maximum likelihood estimation (MLE) to estimate the multinomial logit (MNL) specifications.

Once these models were estimated, simulations were performed to predict the impact of an additional gaming establishment in the region. In other words, if a new establishment were to be opened (with certain characteristics), what impact would this opening have on each of the zip codes included in the analysis. It is important to note these simulations represent “steady state” predictions. The predictions do not represent conditions expected in the immediate aftermath of opening a new establishment.

To simulate the impact of a new casino, we need to select a location (specified by latitude and longitude) and approximate the number of positions at that location. We have selected

<sup>18</sup> Approximately 90% of all revenues were generated from zip codes that were within 100 miles (less than 1 hour drive time) of the gaming establishment; the 100-mile designation captured between 85% and 95% or revenue depending on the establishment. Of the \$1.3B matched to the zip-code, \$1.18B was included in the modeling database of zip codes within 100 miles.



locations that are currently under construction (Lemay and Lumiere Place in St. Louis) and others that have been “discussed” (Chain of Rocks in St Louis, Sugar Creek in Kansas City, the Legends in Kansas City, KS, A Jefferson City casino, a Hermann casino, and a Cape Girardeau casino). For the establishments that are under construction, we have utilized public releases for estimates of the number of positions; for others, we have selected “reasonable” values.<sup>19</sup> The following table details the characteristics of the “proposed” establishments utilized in the simulations.

<b>Table 2: “Proposed” Establishment Characteristics</b>	
<b>“Proposed” Establishment</b>	<b>Gaming Positions</b>
Sugar Creek	2500
Legends	2500
Chain of Rocks	2500
Lemay	3000
Lumiere Place	2000
Jeff City	1500
Hermann	1000
Cape Girardeau	1000

For each zip code, a distance to the proposed new establishment was calculated, the gravity-attraction of the proposed establishment was calculated and the binary variables for existence of establishments within 25 and 50 miles were re-calculated. As a result, any one zip could have between 0 and 4 different individual “impacts”:

- The zip could now be closer to the new establishment,
- The gravity attraction variable of the new establishment could be larger (than previous largest gravity attraction variables),
- Binary variable for gaming establishment within 25 miles could be “switched” on,
- Binary variable for gaming establishment within 50 miles could be “switched” on,

Clearly, (virtually) any combination of the four is possible—so the impacts allowed on any given zip code are very rich.

It is important to note that all model predictions are *ceteris paribus* (holding everything else equal). In other words, when we predict that variable x (for example, admissions) will increase by 5% we mean

- x will be 5% higher than it otherwise *would have been*
- **not** that x will be 5% higher than it is today.

<sup>19</sup> Alternative casino sizes could be simulated, e.g., what difference would it make if Lemay opened with only 2000 positions rather than 3000 positions.

For example, if admissions are trending down at a rate of 2% per year, and the model predicts an increase of 3% (with an additional gaming establishment)—this generally means that admissions would be expected to increase 1% (-2% plus 3%) next year.

#### i. Revenue (AGR) Models

In these models, revenue (and revenue per capita) was related to zip-level demographics (e.g., income) and to zip-boat variables (e.g., the distance to the nearest gaming establishment). We expect zips that are closer to an establishment, more “attracted” to an establishment (measured by gravitational attraction) and are within 25 and 50 miles of an establishment (roughly ½ and 1 hour urban travel time) to generate higher establishment revenue, everything else equal.

Figure 88 presents the simulated revenue increases associated with the “proposed” establishments in St. Louis. As can be seen, the predictions for increases in revenue are rather modest and consistent. For example, the simulated revenue increases for the addition of Lemay and Lumiere Place range between 4.2% and 5.1%.<sup>20</sup>

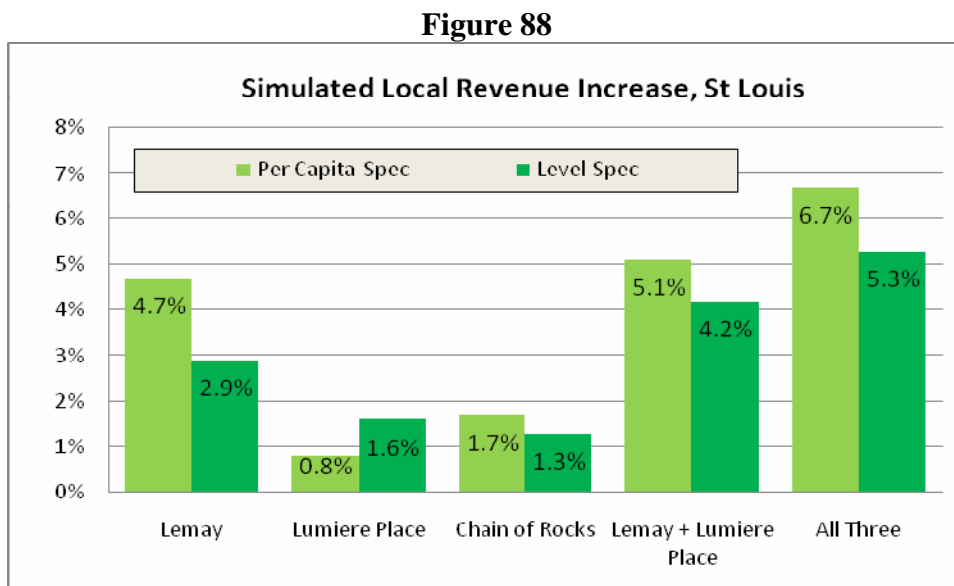


Figure 89 details the simulated revenue increases associated with the “proposed” establishments in Kansas City. Once again, the predictions for increases in revenue are rather modest and consistent. For example, the simulated revenue increases for the addition of a Sugar Creek casino are between 2.4% and 3.2%.

<sup>20</sup> Many other specifications were simulated with similar results. Specifications using number of establishments within 25 and 50 miles (rather than existence of establishments within 25 and 50 miles) yielded somewhat higher predicted increases. These increases, however, were problematic when the number of establishments increased (beyond the existing data). That is, for the introduction of a single establishment, the estimates were slightly higher but reasonable. As the number of proposed new establishments was increased predictions were suspect—especially for per capita model specifications. This is a classic textbook example of “forecasting” beyond the range of the data.

**Figure 89**

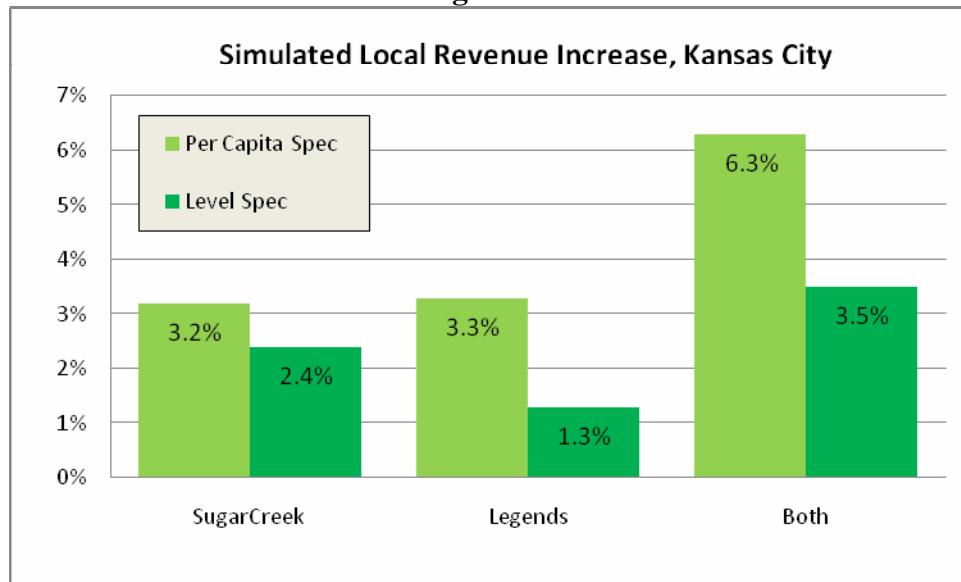
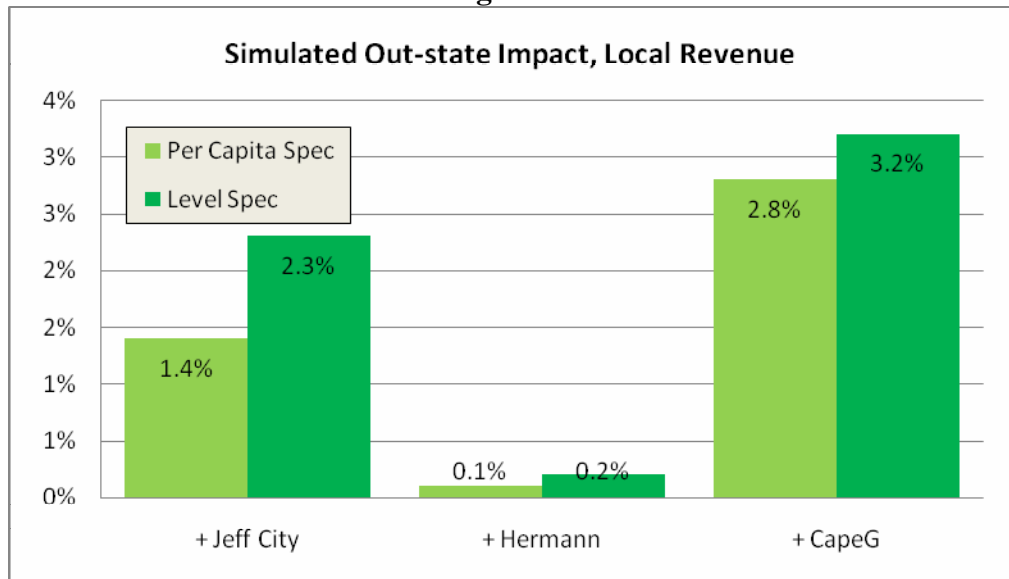


Figure 90 displays the revenue impacts associated with three “proposed” new casinos in out-state Missouri. The more “remote” is the new casino from existing casinos, the higher the expected increase in revenues—as can be seen by comparing the Cape predictions to the Hermann predictions.

**Figure 90**



It should be noted that in this section, all estimates are based on local revenues. The typical Missouri casino generates 90% of its revenue from “local” customers (here defined to be within 100 miles of the casino). If non-local gamers are assumed to behave the same as local gamers, then total revenue would be predicted to increase by the same amount as local revenues. On the other hand, if non-local revenue was “independent” of the number and

location of casino alternatives, then total revenue would be expected to increase 10% less than local revenue. Most likely, the “truth” is likely in-between these estimates.

Since the gaming tax is “flat” 20% of AGR, the estimates provide a direct estimate of the increase in gaming tax collections associated with the opening of new gaming establishments. In other words, a 4.2% increase in AGR associated with the opening of the Lemay and Lumiere Place casinos would yield a 4.2% increase in gaming taxes collected from the St. Louis area casinos.<sup>21</sup>

## **ii. Patron Models**

In these models, patrons (and patrons per capita) were related to zip-level demographics (e.g., income) and to zip-boat variables (e.g., the distance to the nearest gaming establishment). We expect zips that are closer to an establishment, more “attracted” to an establishment (measured by gravitational attraction) and that are within 25 and 50 miles of an establishment (roughly ½ and 1 hour urban travel time) to have higher patronage, everything else equal.

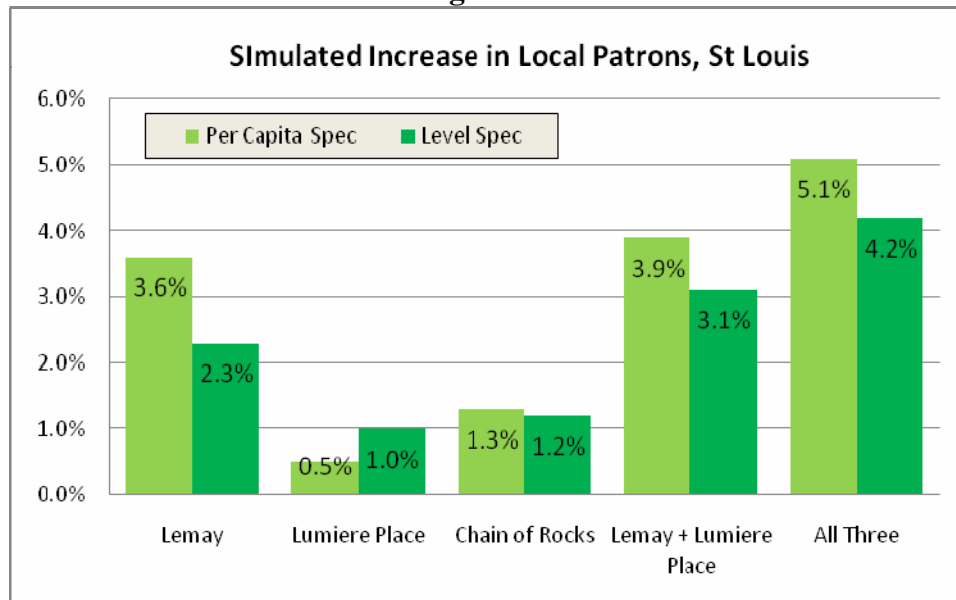
The simulated patronage increases associated with these “proposed” establishments in St. Louis are detailed in Figure 91. As can be seen, the predictions for patronage increases are somewhat smaller than the simulated revenue increases (of the previous section). For example, simulated patronage increases for the addition of Lemay and Lumiere Place range between 3.1% and 3.9% (as compared to 4.2% to 5.1% for revenue).<sup>22</sup>

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<sup>21</sup> As noted above, this is local revenue only (not total St Louis gaming revenue). Further, note that this would not be the case for a Legends casino as any taxes would be collected in Kansas.

<sup>22</sup> This is the opposite of what we would generally expect. Since we expect new “patrons” to have a smaller revenue impact (more marginal if you will) than existing patrons, the predicted increase in AGR would be expected to be somewhat smaller than the associated increase in patronage. This suggests that the predicted revenue increases (for these patronage predictions) are too high (or that the patronage predictions for these revenue predictions are too low).

**Figure 91**



The simulated patronage increases associated with the “proposed” establishments in Kansas City are presented in Figure 92. Once again, the predictions for the increase in patronage are rather modest. For example, the simulated patronage increase for the addition of a Sugar Creek casino is between 1.6% and 2.1%.

**Figure 92**

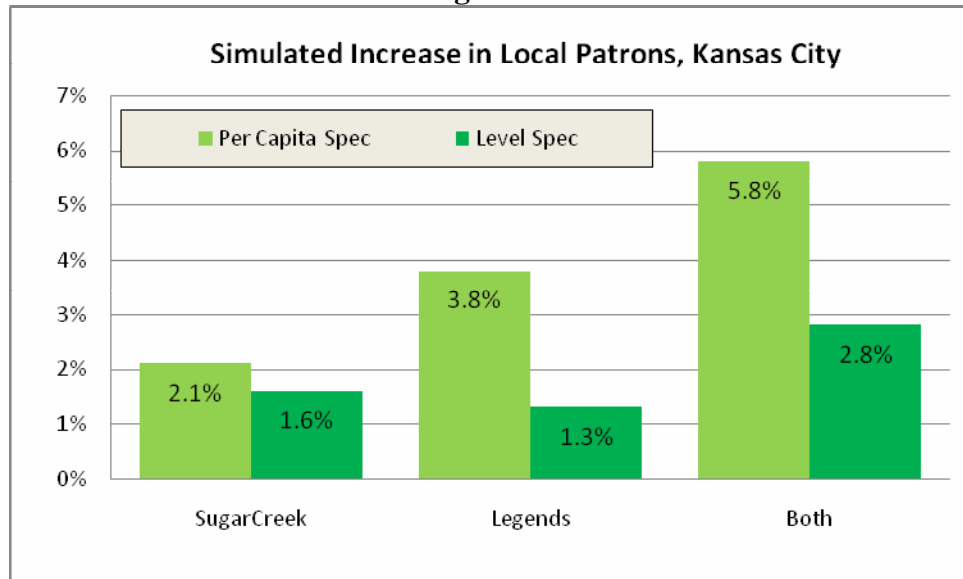
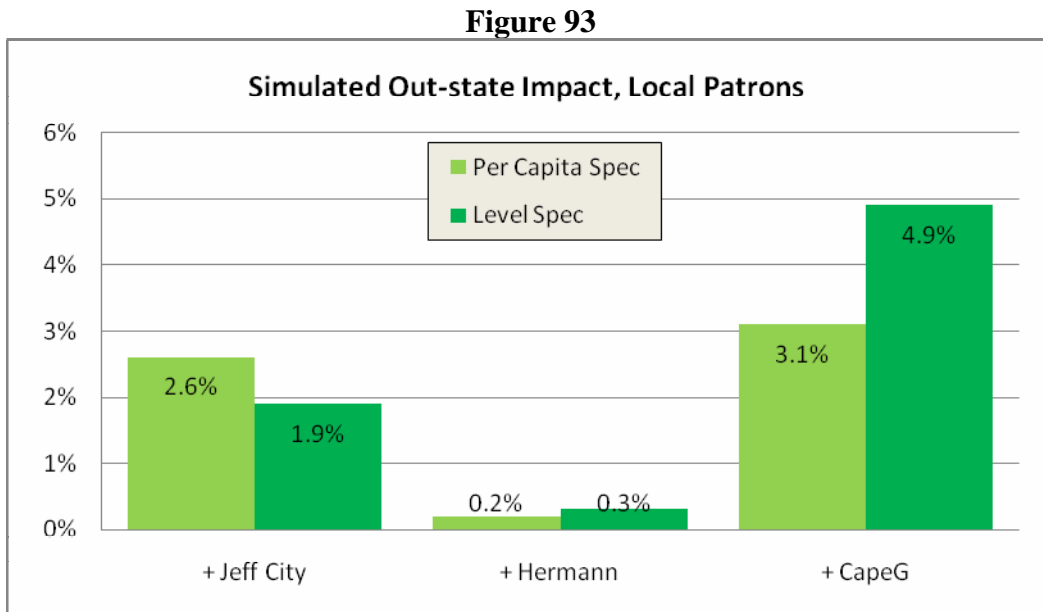


Figure 93 presents the increase in patronage associated with three “proposed” out-state casinos. The results are similar in magnitude to the findings for new casino openings in St. Louis and Kansas City.



Once again, as with revenues, these patronage predictions are for local patrons. The increase in overall patronage would be expected to be slightly lower than these predictions.

### iii. Visits (Admissions) Models

In these models visits (and visits per capita) were related to zip-level demographics (e.g., income) and to zip-boat variables (e.g., the distance to the nearest gaming establishment). We expect zips that are closer to an establishment, more “attracted” to an establishment (measure by gravitational attraction) and that are within 25 and 50 miles of an establishment (roughly ½ and 1 hour urban travel time) to generate higher numbers of visits (admissions), everything else equal.

Figure 94 details the simulated increase in the number of visits associated with these “proposed” establishments in St. Louis. As can be seen, the predictions for increase in admissions are larger than those for increase in patronage (of the previous section). For example, the simulated increase in visits for the addition of Lemay and Lumiere Place range between 5.2% and 8.4% (as compared to 3.1% to 3.9% for patronage).

**Figure 94**

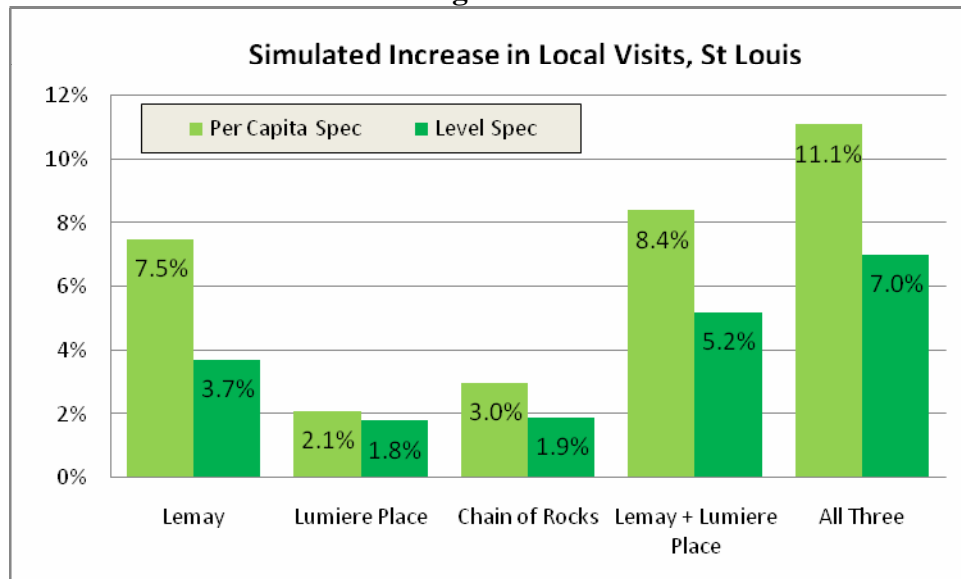


Figure 95 presents the simulated increase in admissions associated with the “proposed” establishments in Kansas City. Once again, the predictions for increase in admissions are relatively modest. For example, the simulated increase in admissions for the addition of a Sugar Creek casino is between 2.9% and 5.7%.

**Figure 95**

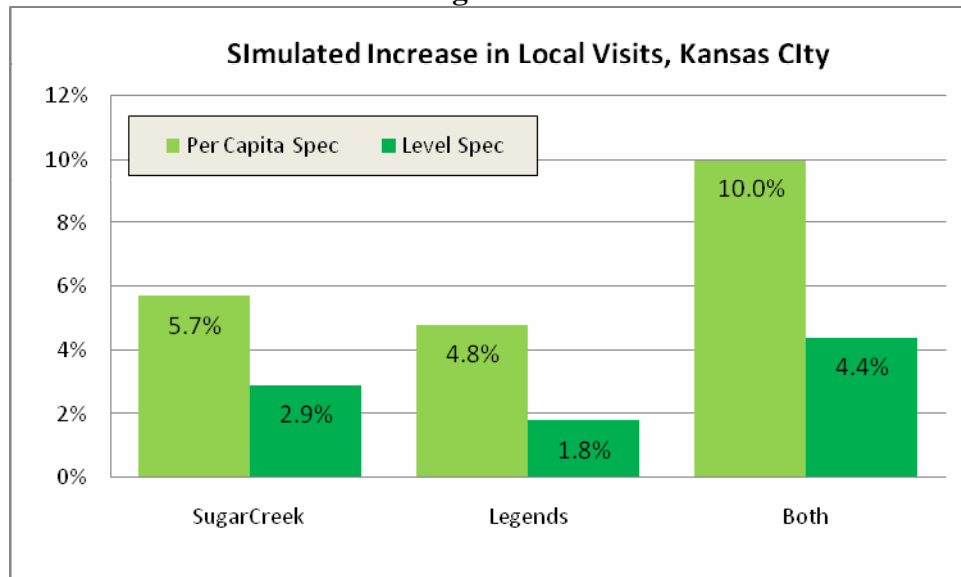
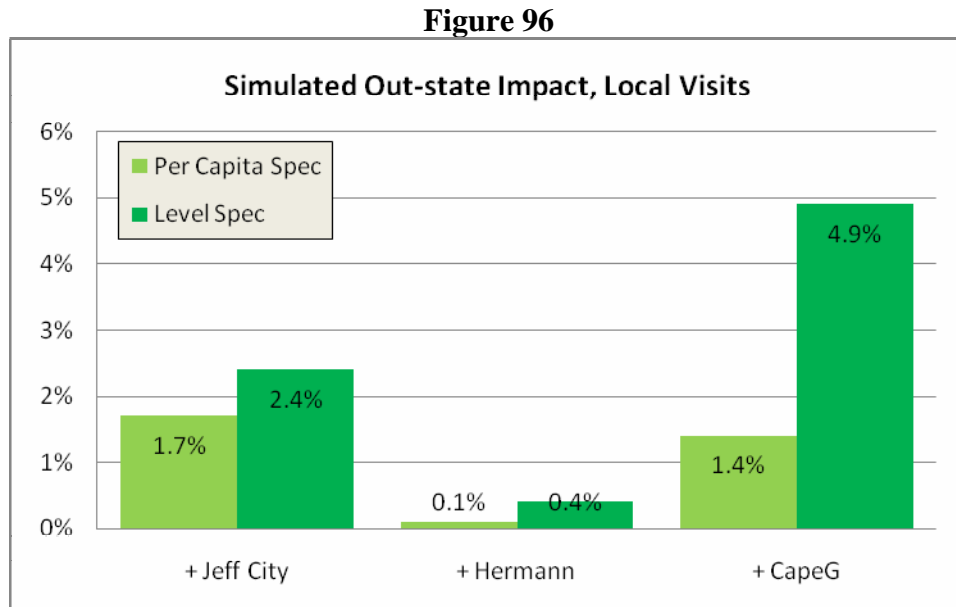


Figure 96 presents the increase in the number of visits associated with three “proposed” out-state casinos.



Once again, as with revenues, these predictions are for local visits (admissions). The increase in overall admissions would be expected to be slightly lower than these predictions.

Since the admissions tax is a simple \$2 per admission, the estimates provide a direct estimate for the increase in admissions taxes associated with the opening of new gaming establishments. In other words, a 2.9% increase in total visits associated with the opening of a Sugar Creek Casino would yield a 2.9% increase in admissions taxes collected from the Kansas City area casinos.<sup>23</sup>

#### iv. Market Share Models

In these models establishment market shares were related to zip-level demographics (e.g., income) and to zip-boat variables (e.g., the distance to the nearest gaming establishment). We expect “better” establishments (establishments that are closer and/or are more “attractive”) to have a higher market share, everything else equal.<sup>24</sup>

The predicted market shares associated with the introduction of the “proposed” establishments in St. Louis are detailed in Figure 97.<sup>25</sup>

Lumiere Place is expected to garner 26% of Missouri gaming revenues (if it were the only new establishment) in St. Louis. In this case, Harrah’s is expected to lose approximately 12% share (from 46.1% to 33.7%). Similarly Ameristar’s market share would fall 10.4% (in basis

<sup>23</sup> Note that this would not be the case for a Legends casino as admissions taxes would be collected in Kansas. Further, the increase would likely be slightly less as non-local gamers are *generally* expected to increase admissions at a slower rate than do local gamers.

<sup>24</sup> Market share is based on local revenue shares.

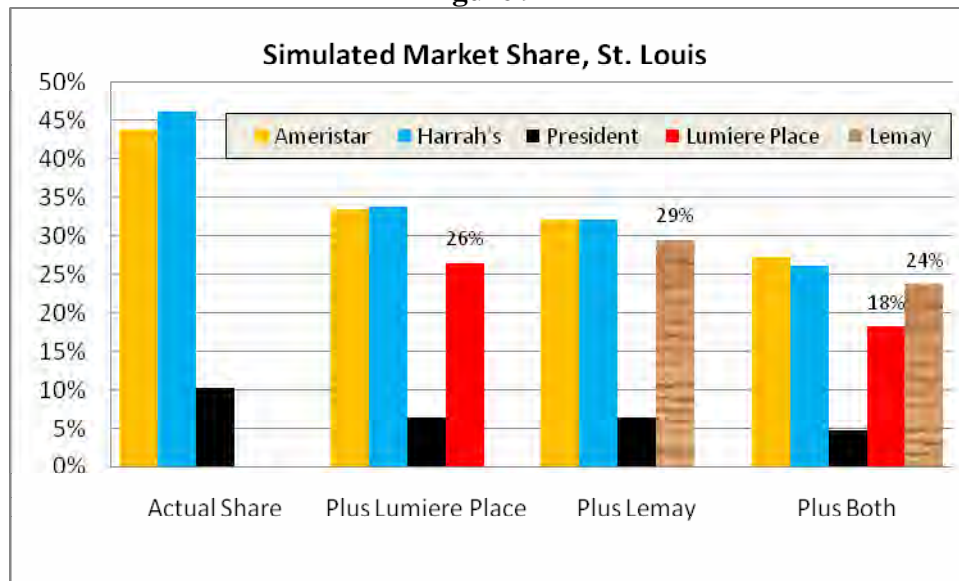
<sup>25</sup> Note these St. Louis simulations contain only the Missouri establishments (IL establishment zip-level revenue data was not available).



points, from 43.8% to 33.4%) and the President's share would be predicted to fall from 10.1% to 6.3%.

The Lemay establishment is expected to garner a 29% share (if it were the only new establishment). In this model scenario, Harrah's market share would fall from 46.1% to 32.0%. Similarly, Ameristar's market share would fall from 43.8% to 32.1% and the President's predicted market share would fall from 10.1% to 6.3%.

**Figure 97**



When adding both establishments, the predicted market shares for Lemay and Lumiere Place are 23.7% and 18.1%, respectively. In this model scenario, Harrah's market share would fall from 46.1% to 26.2%. Similarly Ameristar's market share would fall from 43.8% to 27.2% and the President Casino's predicted market share would fall from 10.1% to 4.7%.

Predicted market shares associated with the introduction the "proposed" casinos into Kansas City are presented in Figure 98.

The model scenario indicates that a Sugar Creek Casino would garner approximately 22.2% of the gaming revenues (if it were the only new establishment) in Kansas City. In this case, Ameristar's market share would fall from 36.3% to 25.6%. Similarly, Harrah's market share would fall 6.7% (from 28.3% to 21.6%), the Isle of Capri's market share would fall from 12.7% to 10.6%, and Argosy's market share would decrease from 22.7% to 20.0%.

A new casino at the Legends would be expected to garner approximately 18.4% of the gaming revenues (if it were the only new establishment) in Kansas City. Under this model scenario, Ameristar's market share would fall from 36.3% to 31.3%. Similarly, Harrah's market share would decrease from 28.3% to 21.9%, the Isle of Capri's market share would fall from 12.7% to 10.5%, and Argosy's market share would decrease from 22.7% to 18.0%.

**Figure 98**

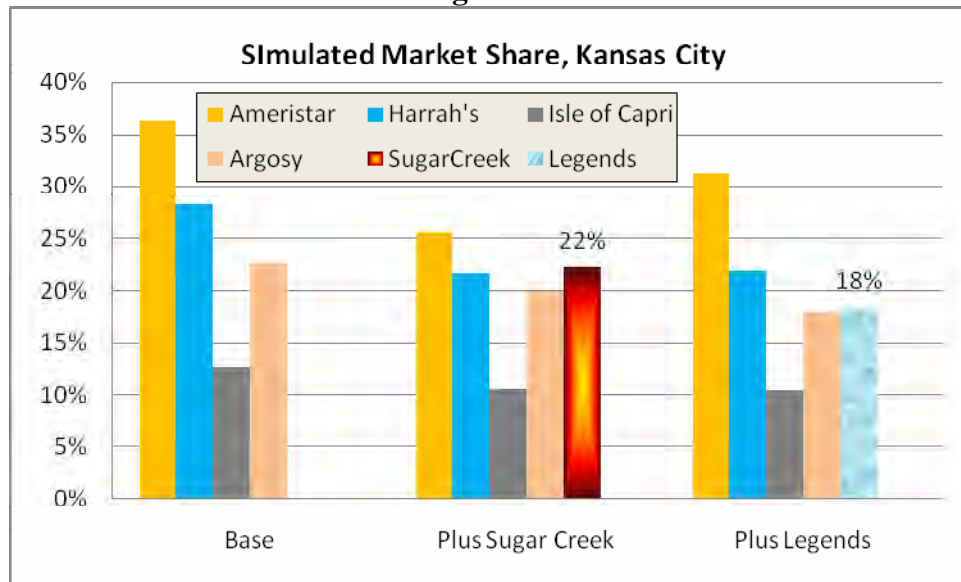
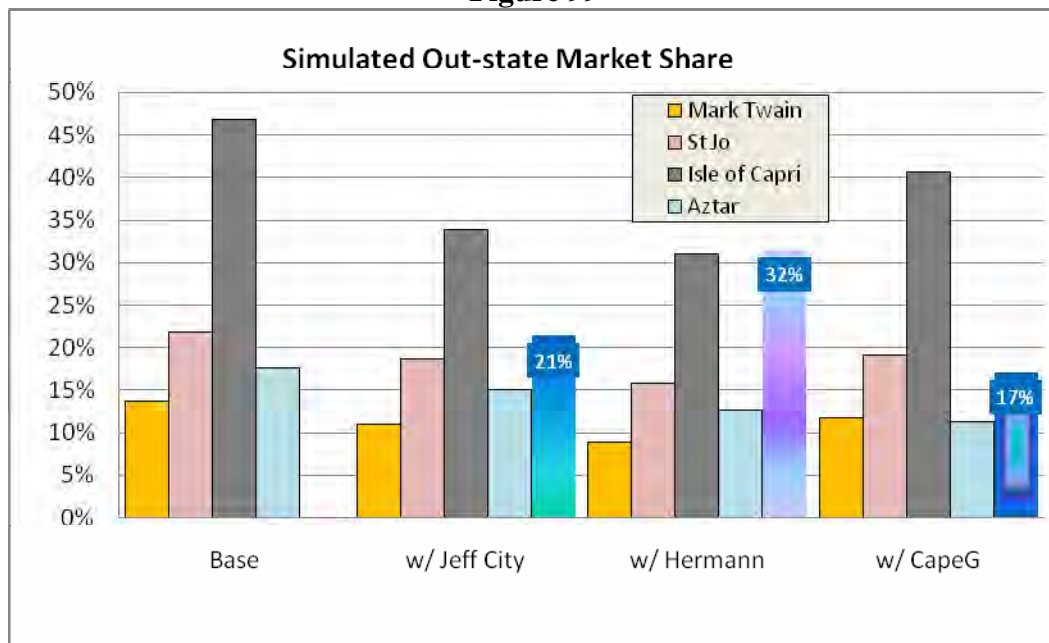


Figure 99 presents the predicted shares for existing and new casinos in the out-state region. While Hermann yielded the lowest predicted increase in local revenues, it would be expected to garner a larger share of existing revenues.

**Figure 99**



Also of potential policy interest is whether expansion in the metro areas (St. Louis and Kansas City) has deleterious effects on out-state gaming facilities. Figures 100 and 101 present the results of representative market-share simulations.

Figure 100 details the impacts of a proposed Kansas City casino at Sugar Creek on out-state casinos. As expected, expansion in Kansas City has larger impacts on “near-by” out-state establishments (St. Jo Frontier and Isle of Capri-Boonville) than it does on more distant casinos (Mark Twain and Casino Aztar).

**Figure 100**

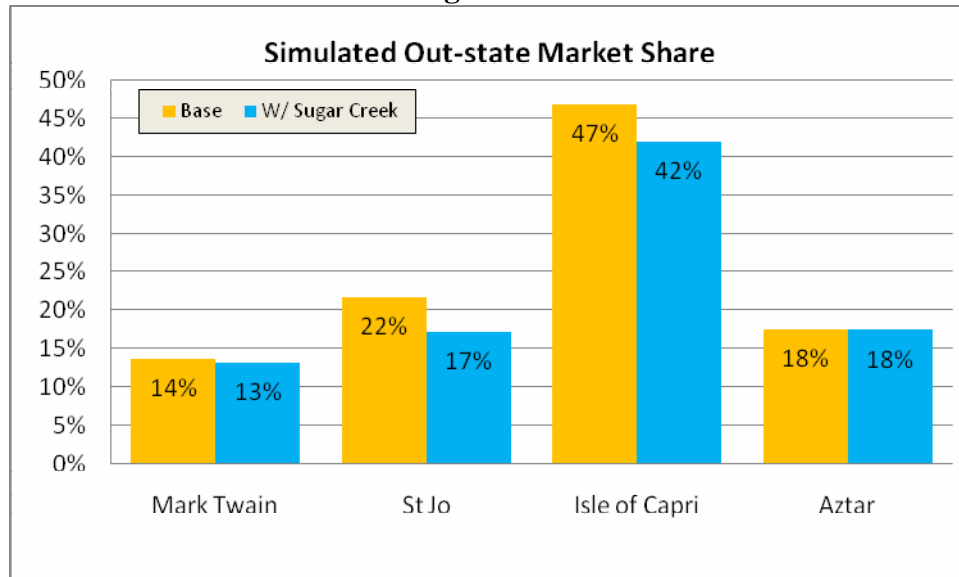
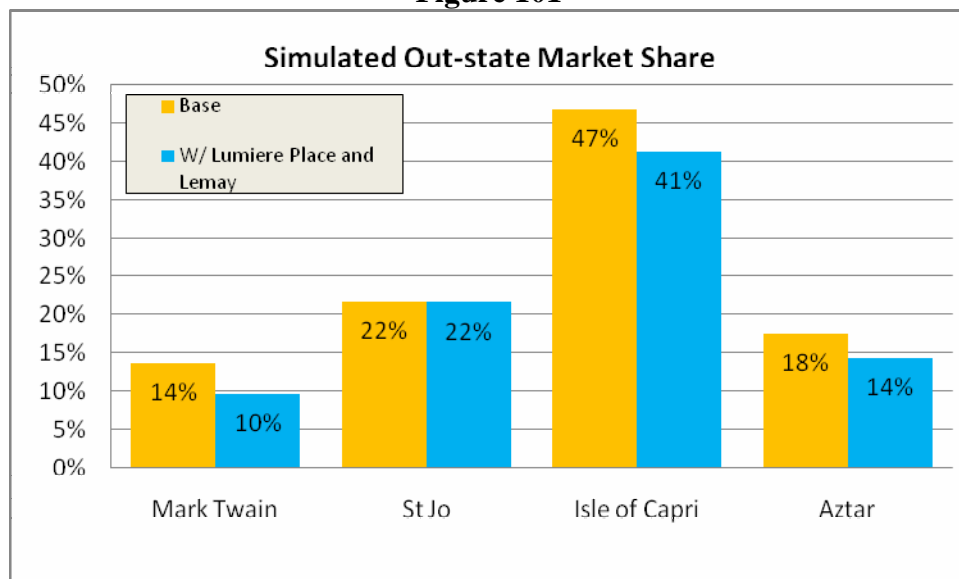


Figure 101 details the impacts on out-state market share caused by the opening of the Lemay and Lumiere Place establishments in St. Louis. As with the “proposed” Kansas City expansion, the closer casinos are affected more strongly than are the more-distant casinos.

**Figure 101**



Note that in both Figure 100 and 101 the post-metro-expansion market shares sum to less than 100%. This is a direct result of the new metro gaming facilities siphoning-off revenues from out-state facilities.

## b. Survey data models<sup>26</sup>

### i. Revenue (AGR) Models

In this model, revenues (self-reported gamer “budgets”) were related to household demographics (e.g., income) and to zip-boat variables (e.g., the distance to the nearest gaming establishment). We expect individuals that are closer to an establishment and/or whose zip-code is more “attracted” to an establishment (measure by gravitational attraction of their home zip) to exhibit higher gaming expenditures, everything else equal. It should be noted that these models are relatively simple (as compared to the zip-level models). Recall that we only observe budgets for those households who identify themselves as “gamers” in the survey and who answer the question that requests budget amounts. As a result, while these models provide the “upper-bound” of revenue increase estimates (Tables 3 and 4 below) the estimates should be treated with some caution.

Figure 102 details the simulated revenue increases associated with the “proposed” establishments in St. Louis. As can be seen, the predicted revenue increases from the survey model are somewhat larger than the increases predicted by the zip-level models. For example, the predicted increase in revenue associated with the opening of all three casinos is 14.3% (compared to 5.3% and 6.4% in the zip-based models).

**Figure 102**

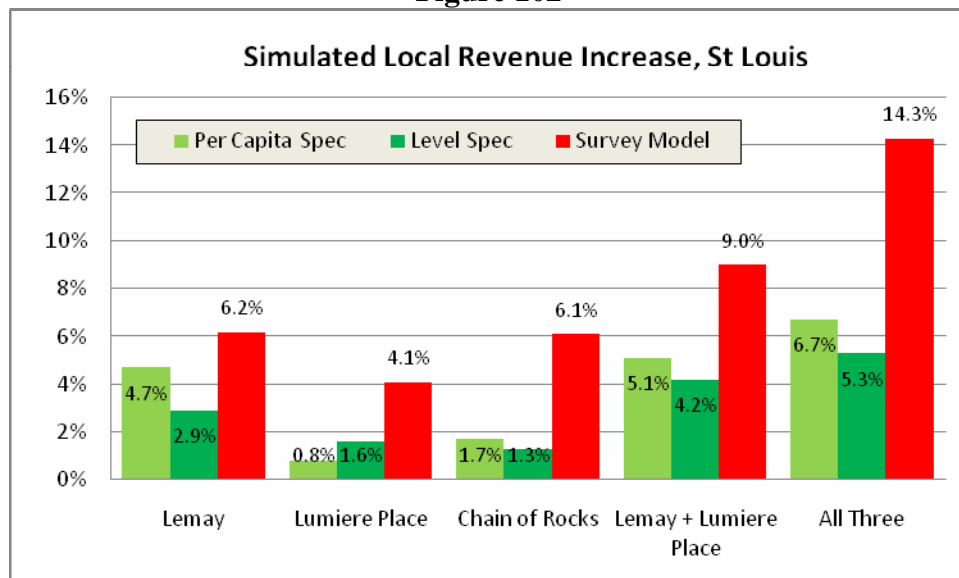
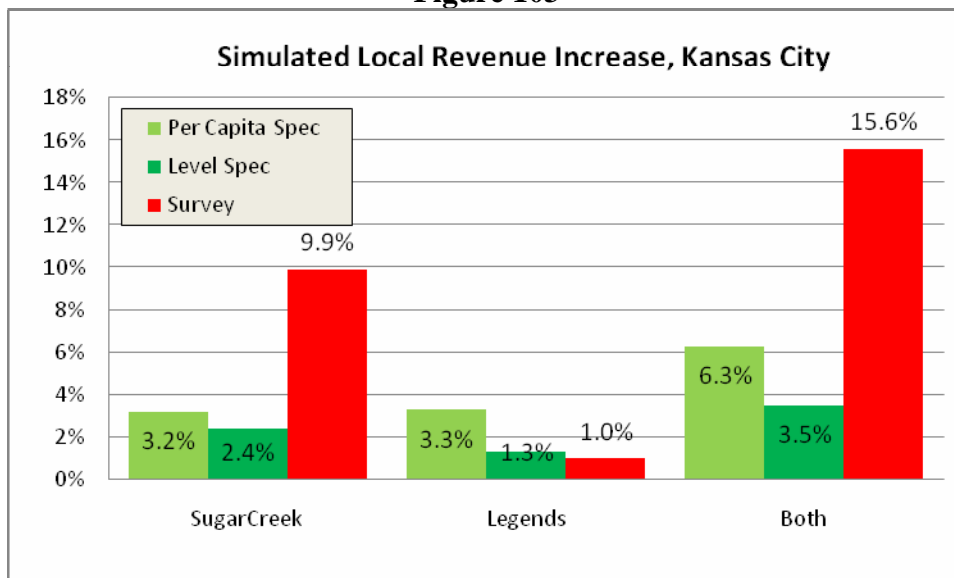


Figure 103 presents the simulated revenue increases associated with the “proposed” establishments in Kansas City. As can be seen, the predicted revenue increases from the survey model are generally larger than the increases predicted by the zip-level models. For

<sup>26</sup> This decision was made for two reasons: (1) the out-state sample was smaller and (2) the results in Kansas City and St. Louis were either “confirmatory” (that is, they tended to support zip-data models but added little “new” information, e.g., Patrons) or were statistically unreliable (e.g., AGR).

example, the opening of a casino in Sugar Creek and the Legends leads to a predicted revenue increase of 15.6% (compared to 3.5% and 6.4% in the zip-based models).<sup>27</sup>

**Figure 103**



These results fall “well-outside” the range of estimates from the zip-based models. Given the relatively modest sample sizes and the unreliability of self-reported spending, these simulation results are reliable and are not used elsewhere in the report.<sup>28</sup>

## ii. Patron Models<sup>29</sup>

In this model, patronage (annual number of trips to a gaming facility) was related to household demographics (e.g., income) and to zip-boat variables (e.g., the distance to the nearest gaming establishment). We expect individuals who are closer to an establishment and/or more “attracted” to an establishment (measured by gravitational attraction) to visit more often, everything else equal. As noted in the survey-based revenue model in the previous section, the specification of this model is relatively simple (as compared to the zip-based models).

The simulated patronage increases associated with the “proposed” establishments in St. Louis are presented in Figure 104. As can be seen, the predicted patronage increases from the survey model are *very similar* to the increases predicted by the zip-level models. In every simulated case, the results for St Louis patronage are *very close*.

<sup>27</sup> The apparent discrepancy between Sugar Creek and the Legends is caused by a peculiar interaction of the gravity and distance variables. The survey-based results for Kansas City are best considered preliminary.

<sup>28</sup> The results are reported only for completeness.

<sup>29</sup> Note that we cannot estimate visits (admissions) from the survey data as we did not ask “how long” they stay at casinos (in two-hour increments), but rather how often they visit gaming establishments.

**Figure 104**

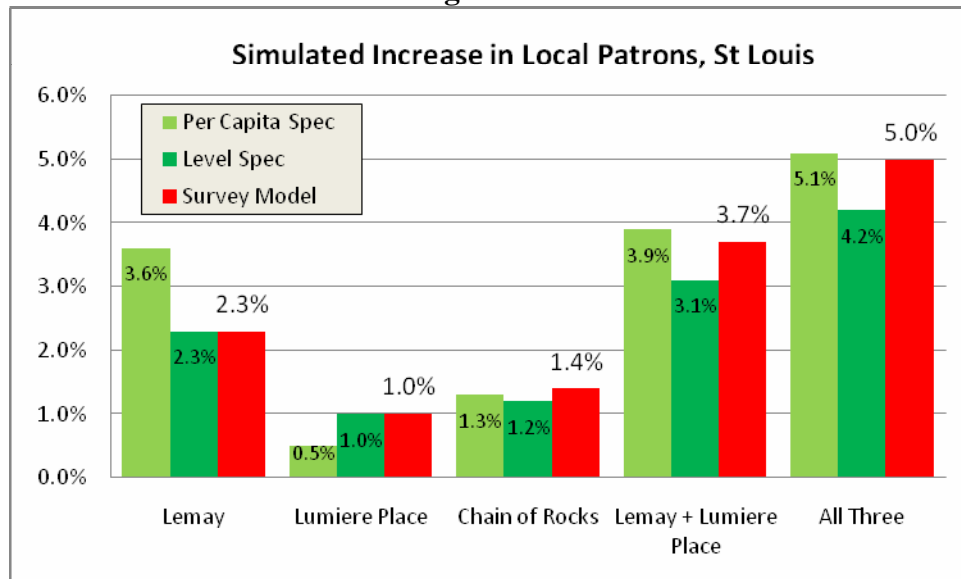
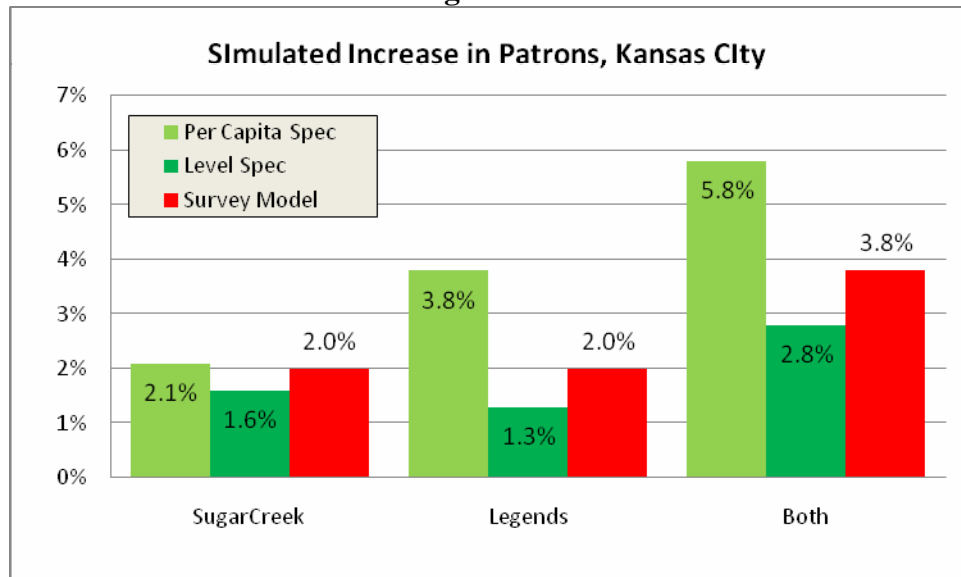


Figure 105 details the simulated patronage increases associated with the “proposed” establishments in Kansas City. As can be seen, the predicted patronage increases from the survey model are *between* the increases predicted by the alternative specifications of the zip-level models.

**Figure 105**



Figures 105 and 106 are confirmatory in the sense that the independent modeling estimates from the survey are very close to results obtained from the zip-level models presented previously.

### iii. Market Share Model

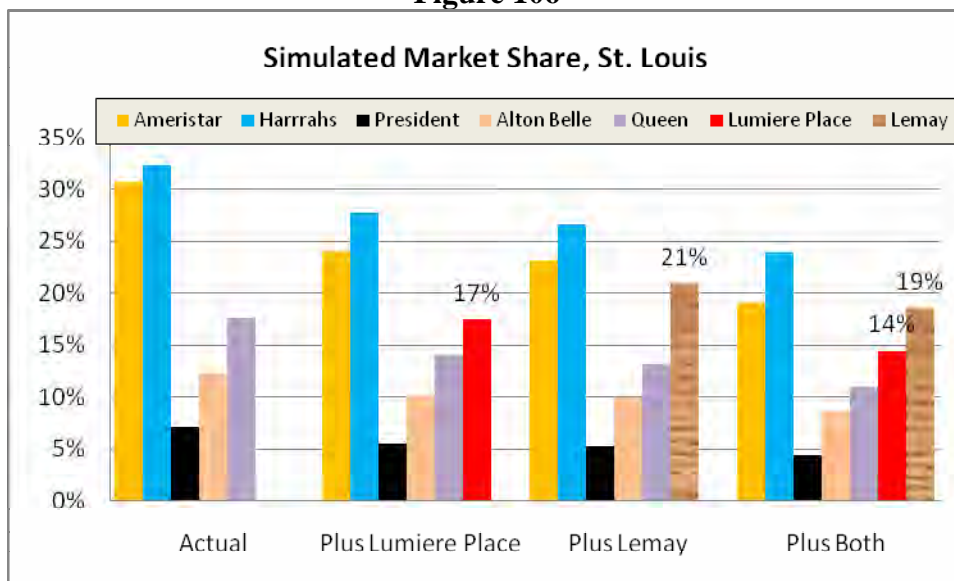
In these models establishment market shares were related to household demographics (e.g., income) and to zip-boat variables (e.g., the distance to the nearest gaming establishment). We expect “better” establishments (establishments that are closer and/or are more “attractive”) to attract more gamers and hence have a higher market share, everything else equal.

The predicted market shares associated with the introduction of the “proposed” establishments in St. Louis are presented in Figure 106.

The Lemay Casino is expected to garner approximately 21% of gaming revenues (if it were the only new establishment) in St. Louis. (Note, unlike the zip-based predictions that included Missouri revenues only, these models reflect both Missouri and Illinois gaming revenues and thus the larger bi-state market in St. Louis, and this accounts for lower market shares reported under this model) In this model scenario, Harrah’s market share decreases from 32.3% to 26.7%. Similarly, Ameristar’s market share falls from 30.6 % to 23.1% and the President’s share falls from 7.1% to 5.3%.

Lumiere Place is expected to gain a 17.4% share in St. Louis (if it were the only new establishment). In this scenario, Harrah’s market share would be 27.8% (down from 32.3%). Similarly Ameristar’s market share would fall from 30.7% to 24.1% and the President’s market share would fall from 7.1% to 5.6%.

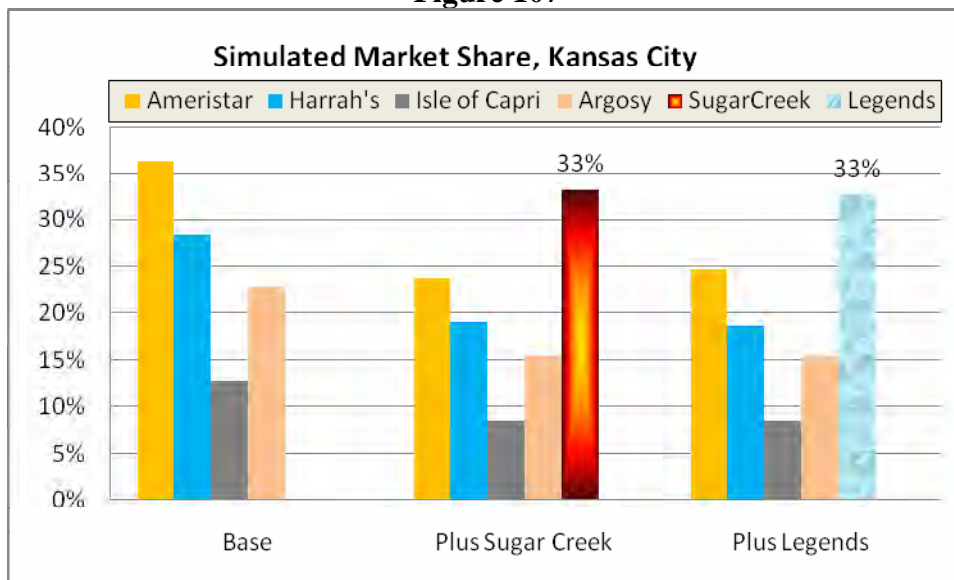
**Figure 106**



When adding both establishments, the predicted market shares for Lemay and Lumiere Place are 17.8% and 13.8%, respectively. In this scenario, Harrah’s predicted market share is 23.9% (down from 32.3%). Ameristar’s predicted market share is 19.1% (down from 30.7%) and the President’s predicted share is 4.4% (down from 7.1%).

Figure 107 presents the predicted market shares associated with the introduction of the “proposed” establishments in Kansas City.

**Figure 107**



A Sugar Creek Casino would be expected to garner approximately 33.3% of the gaming revenues (if it were the only new establishment) in Kansas City. In this model scenario, Ameristar’s market share falls to 23.7% (from 36.3%). Harrah’s market share falls from 28.3% to 19.1%, Isle of Capri’s market share falls from 12.7% to 8.5%, and Argosy’s share decreases from 22.7% to 15.5%.

A new casino at the Legends would be expected to garner approximately 32.7% of the gaming revenues (if it were the only new establishment) in Kansas City. In this scenario, Ameristar’s market share falls from 36.3% to 24.7%. Harrah’s market share decreases to 18.7% from 28.3%, Isle of Capri’s market share falls from 12.7% to 8.4%, and Argosy’s market share falls from 22.7% to 15.4%.

### **c. Prediction Summary**

The previous sections have provided various predictions about the impacts of new gaming facilities on revenue (AGR), patrons, and visits (admissions). Here we provide a brief tabular summary of results. Here we provide upper- and lower-bound estimates—that are “reasonable”. (as mentioned in the section on survey-based revenue projections, estimates that are considered “outliers” (whether “high” or “low”) are not include here.



Table 3 presents a range of estimates for the St. Louis market (revenue, patrons, and admissions).

<b>Table 3: Impact Range, St Louis</b>		
<b>REVENUE</b>	<b>low</b>	<b>high</b>
Lemay	2.9%	4.7%
Lumiere Place	0.8%	1.6%
Chain of Rocks	1.3%	1.7%
Lemay + Lumiere Place	4.2%	5.1%
All Three	5.3%	6.7%
<b>Patrons</b>	<b>low</b>	<b>high</b>
Lemay	2.3%	3.6%
Lumiere Place	0.5%	1.0%
Chain of Rocks	1.2%	1.3%
Lemay + Lumiere Place	3.1%	3.9%
All Three	4.2%	5.1%
<b>Visits (Admissions)</b>	<b>low</b>	<b>high</b>
Lemay	3.7%	7.5%
Lumiere Place	1.8%	2.1%
Chain of Rocks	1.9%	3.0%
Lemay + Lumiere Place	5.2%	8.4%
All Three	7.0%	11.1%

Table 4 presents a range of estimates for the Kansas City market (revenue, patrons, and admissions).

<b>Table 4: Impact Range, Kansas City</b>		
<b>REVENUE</b>	low	high
Sugar Creek	2.4%	3.2%
Legends	1.3%	3.3%
Both	3.5%	6.3%
<b>Patrons</b>	low	high
Sugar Creek	1.6%	2.1%
Legends	1.3%	3.8%
Both	2.8%	5.8%
<b>Visits (Admissions)</b>	low	high
Sugar Creek	2.9%	5.7%
Legends	1.8%	4.8%
Both	4.4%	10.0%

The range of estimates (revenue, patrons, and visits) for the out-state market is presented in Table 5.

<b>Table 5: Impact Range, Out-state</b>		
<b>REVENUE</b>	low	high
Jeff City	1.4%	2.3%
Hermann	0.1%	0.2%
Cape Girardeau	2.8%	3.2%
<b>Patrons</b>	low	high
Jeff City	1.9%	2.6%
Hermann	0.2%	0.3%
Cape Girardeau	3.1%	4.9%
<b>Visits (Admissions)</b>	low	high
Jeff City	1.7%	2.4%
Hermann	0.1%	0.4%
Cape Girardeau	1.4%	4.9%

The rather modest increases in revenues coupled with the simulated decreases in market share imply that existing establishments will suffer (sizable) declines in revenue.

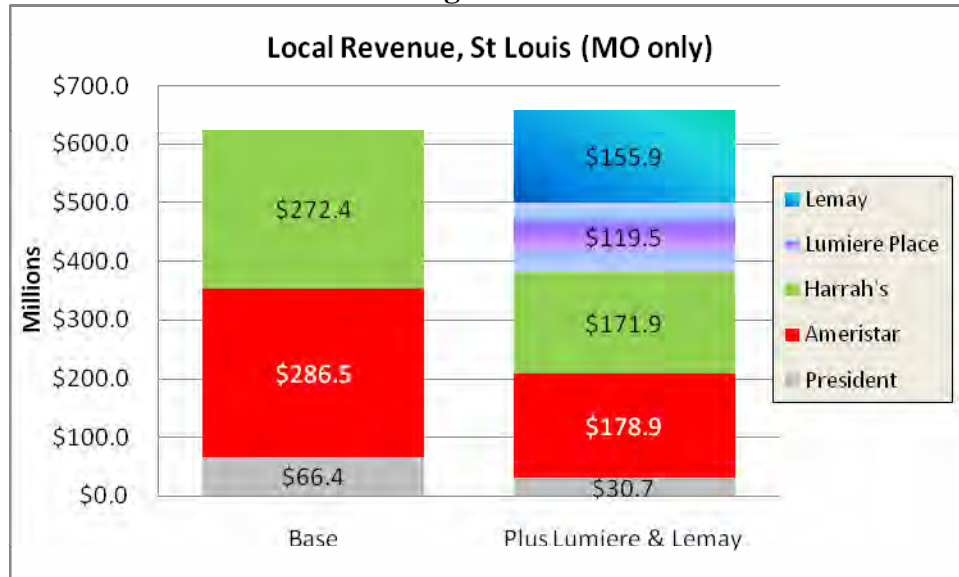
Using the upper-range estimate for the increase in regional revenue associated with the addition of Lumiere Place and the Lemay Casino, revenue estimates for each casino in the St. Louis market are calculated.<sup>30</sup> Table 6 presents projected revenue impacts based on the market-share model developed from zip-level data.

**Table 6: Simulated Revenue (by establishment), St. Louis  
Upper bound Revenue Increase (+5.1%), Zip-based Model**

	Total	President	Ameristar	Harrah's	Lumiere Place	Lemay
Base (\$ Millions)	\$625.3	\$66.4	\$286.5	\$272.4		
New (\$ Millions) with Lumiere Place and Lemay)	\$657.1	\$ 30.7	\$178.9	\$ 171.9	\$ 119.5	\$155.9
Delta (\$Millions)	\$31.9	-\$35.7	-\$107.6	-\$100.5		

As can be seen in Table 6, the two new Pinnacle casinos are expected to generate approximately \$276M AGR with about 43% of this total coming from Lumiere Place. Once again, it should be noted that these are local revenues. Therefore, to the extent that Lumiere Place is able to generate more non-local traffic, its performance may be (significantly) better. Both Ameristar and Harrah's are expected to have local AGR fall by over \$100M. Table 6 is summarized in Figure 108.

**Figure 108**



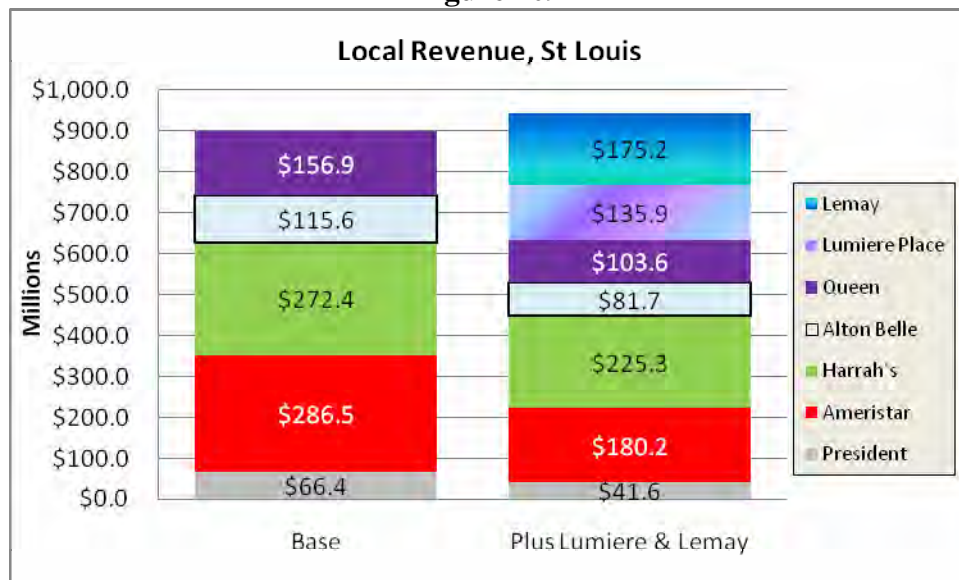
<sup>30</sup> We will use 2006 revenues as the basis of the calculation (from the Missouri Gaming Commission Annual Report).

Table 7 presents projected revenue impacts based on the market-share model developed using individual-level data (from the survey).

<b>Table 7: Simulated Revenue (by establishment), St. Louis</b> <b>Upper bound Revenue Increase (+5.1%), Survey-based Model</b>								
	<b>Total</b>	<b>President</b>	<b>Ameristar</b>	<b>Harrah's</b>	<b>Alton Belle</b>	<b>Queen</b>	<b>Lumiere Place</b>	<b>Lemay</b>
Base (\$ Millions)	\$ 897.7	\$ 66.4	\$ 286.5	\$ 272.4	\$ 115.6	\$156.9		
New (\$Millions) (with Lumiere Place & Lemay)	\$943.5	\$ 41.6	\$ 180.2	\$ 225.3	\$ 81.7	\$103.6	\$ 135.9	\$175.2
Delta (\$Millions)	\$45.8	-\$24.8	-\$106.3	-\$47.1	-\$22.9	-\$53.3		

Using the survey based data, the new Pinnacle casinos are expected to be significantly “larger” (\$311M vs \$276M in local AGR). Overall, local revenues are expected to increase by nearly \$46M annually; Lemay is projected to be the third largest casino (in terms of local AGR) in St. Louis (behind only Ameristar and Harrah’s). Each of the existing casinos is expected to experience reductions in local AGR—ranging from \$22.9 for the Alton Belle to over \$100M for Ameristar). Figure 109 summarizes the results presented in Table 7.

**Figure 109**



Some significant differences in the underlying predictions are highlighted in Tables 6 and 7; the zip-based models predicts about twice as much decrease in revenue for Harrah’s (\$107.6M vs. \$47.1M) and about 50% larger reduction for the President’s Casino (\$35.7M vs. \$24.8M). On the other hand, both models estimate the reduction in revenue for Ameristar to be approximately \$107M.

Note these estimates are local only. As a result, Harrah's (and the *expected* visitor-base for Lumiere Place) would tend to "isolate" these casinos from local competition since more of the revenue is from (or is planned to be from) non-local sources.

Using the upper-range estimate for the increase in revenue associated with the addition of the Sugar Creek Casino, revenue estimates for each casino in the Kansas City market are calculated. Table 8 presents revenue projections using the zip-level data.

**Table 8: Simulated Revenue (by establishment, Kansas City)  
Upper bound Revenue Increase (+4.0%), Zip-based Model**

	Total KC	Argosy Riverside	Harrah's	Isle of Capri	Ameristar	Sugar Creek
Base (\$Millions)	\$641.1	\$155.1	\$172.1	\$84.3	\$229.7	
New (\$Millions) with Sugar Creek	\$661.6	\$132.1	\$143.2	\$69.9	\$169.3	\$147.0
Delta (\$Millions)	\$20.5	-\$22.9	-\$28.9	-\$14.4	-\$60.3	

Overall, local revenues are expected to increase by just over \$20M annually; Sugar Creek is projected to be the second largest casino (in terms of local AGR) in Kansas City (behind only Ameristar). Each of the existing casinos is expected to experience reductions in local AGR—ranging from \$14.4M for Isle of Capri to over \$60M for Ameristar). Table 8 is summarized in Figure 110.

**Figure 110**

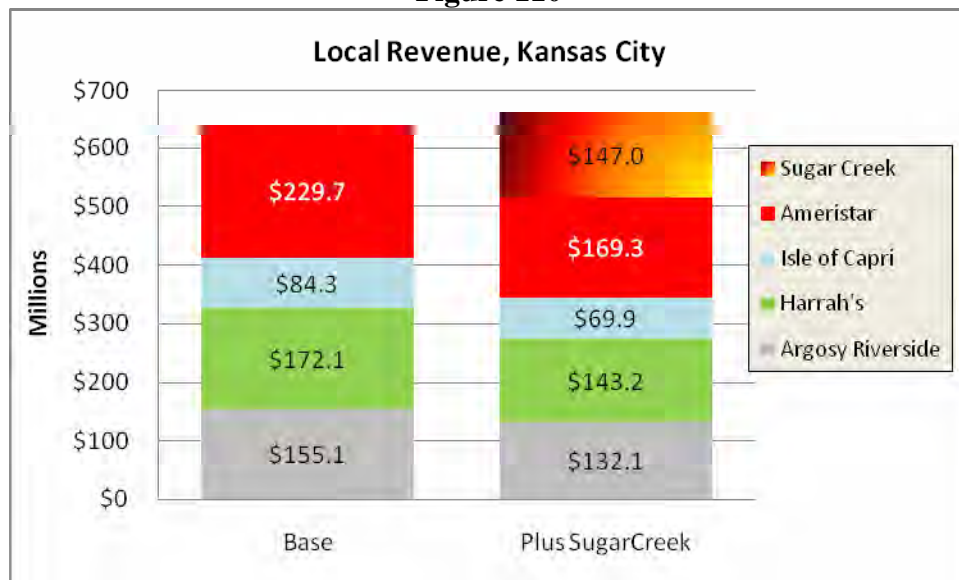
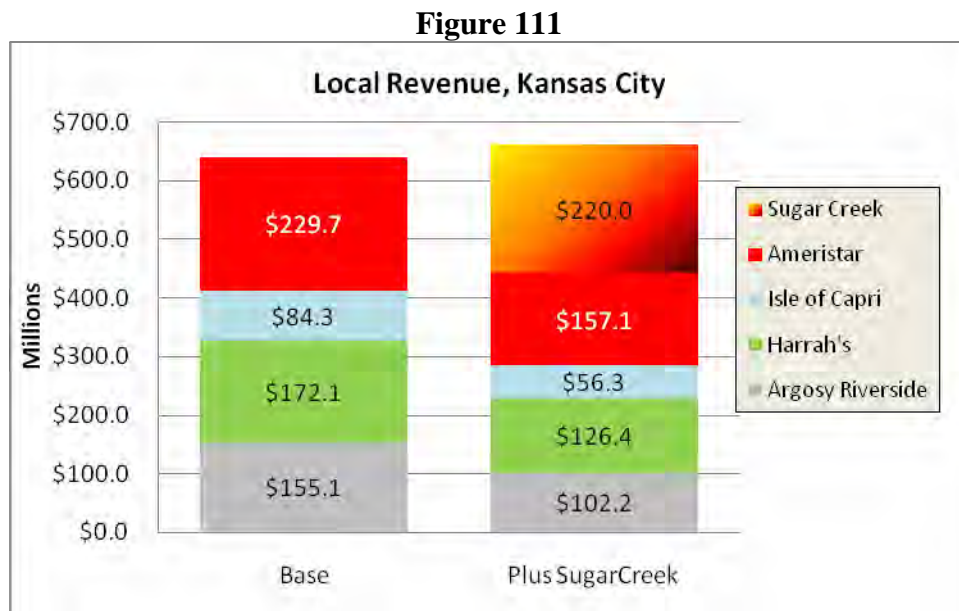


Table 9 presents revenue projections for Kansas City using the market-share model developed from individual-level data (from the survey).

<b>Table 9: Simulated Revenue (by establishment, Kansas City) Upper bound Revenue Increase (+4.0%), Survey-based Model</b>						
	<b>Total KC</b>	<b>Argosy Riverside</b>	<b>Harrah's</b>	<b>Isle of Capri</b>	<b>Ameristar</b>	<b>Sugar Creek</b>
Base (\$Millions)	\$641.1	\$155.1	\$172.1	\$84.3	\$229.7	
New (\$Millions) with Sugar Creek	\$661.6	\$102.2	\$126.4	\$56.3	\$157.1	\$220.0
Delta (\$Millions)	\$20.5	-\$52.9	-\$45.7	-\$28.0	-\$72.5	

Table 9 is summarized in Figure 111---where the modest overall increase and sizable reductions for existing casinos can easily be seen.



Tables 8 and 9 highlight differences in the underlying predictions; the zip-based models predict less revenue loss for all existing casinos (as compared to the survey-based model); or said another way, the zip-based model predicts a much larger revenue for the new Sugar Creek casino (\$220M vs. \$147M). The largest difference in prediction is for Argosy Riverside (\$22.9M vs. \$32.9M loss), while the smallest difference is for Ameristar (\$60.3M vs. \$72.5M loss).

Given the inherent uncertainty of predicting the impact of market entry, the fact that the estimates from different specifications and distinct data sources are relatively “close” seems to confirm the range of overall estimates.

Using the upper-range estimate for the increase in regional revenue associated with the addition of a Jefferson City Casino, revenue estimates for each casino in the out-state

Missouri market are calculated and presented in Table 10. Clearly, the “nearby” Isle of Capri is the “big” loser, while the “distant” Casino Aztar is virtually unaffected.

**Table 10: Simulated Local Revenue (by establishment), Out-state Upper-bound Predicted Increase (+2.3%), Zip-based Model**

	Total	Mark Twain	St Jo Frontier	Isle of Capri	Aztar	Jeff City
Base (\$Millions)	\$ 143.4	\$ 20.6	\$ 33.1	\$ 66.6	\$ 23.1	
New (\$Millions) with Jeff City	\$ 146.7	\$ 16.5	\$ 31.3	\$ 39.0	\$ 22.8	\$ 37.1
Delta (\$Millions)	\$3.3	-\$4.1	-\$1.8	-\$27.6	-\$0.3	

Table 10 is summarized in Figure 112.

**Figure 112**

